



## Arlington Conservation Commission

**Date:** Thursday, November 5, 2020  
**Time:** 7:30 PM  
**Location:** Conducted by Remote Participation

### Agenda

#### 1. Administrative

- a. In accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, the November 5, 2020 public meeting of the Arlington Conservation Commission shall be physically closed to the public to avoid group congregation. The meeting shall instead be held virtually using Zoom.

Topic: Conservation Commission Meeting

Time: November 5, 2020 07:30 PM Eastern Time (US and Canada)

***Register in advance for this meeting:***

[https://town-arlington-ma-us.zoom.us/meeting/register/tJltcu-opjwoE9zhzc\\_HRiPRxQoVN0lOj\\_qc](https://town-arlington-ma-us.zoom.us/meeting/register/tJltcu-opjwoE9zhzc_HRiPRxQoVN0lOj_qc)

Members of the public are strongly encouraged to send written comment regarding any of the hearings listed below to Conservation Agent Emily Sullivan at [esullivan@town.arlington.ma.us](mailto:esullivan@town.arlington.ma.us).

Please read Governor Baker's Executive Order Suspending Certain Provision of Open Meeting Law for more information regarding virtual public hearings and meetings: <https://www.mass.gov/doc/open-meeting-law-order-march-12-2020/download>

- b. Review draft 10/01/2020 minutes.
- c. Review draft 10/15/2020 minutes.
- d. Updates on recent conferences

#### 2. Discussion

- a. Regulations Update:
  - Section 33 Stormwater Management
  - Section 31: Climate Change Resilience
  - Section 23: Floodplain

#### 3. Hearings

**Notice of Intent**

**Notice of Intent: Department of Public Works, 51 Grove Street**  
MassDEP File #091-0326

This project proposes a new/renovated Municipal Facility to support the Department of Public

Works (DPW), Inspectional Services Department (ISD), Facilities, and IT departments at 51 Grove Street. The proposed site includes the current 4.4-acre parcel, used by DPW / ISD, and an adjacent 1.4-acre portion of Town-owned land for a total of 5.8 acres. Sections of the site are within the 100-ft Wetlands Buffer, AURA, and 200-ft Riverfront Area of Mill Brook, as well as floodway and floodplain.





## Town of Arlington, Massachusetts

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### Review draft 10/01/2020 minutes

#### Summary:

Review draft 10/01/2020 minutes.

#### ATTACHMENTS:

Type	File Name	Description
Minutes	10012020_Minutes_Conservation_Commission.pdf	10012020 Draft Minutes



## Arlington Conservation Commission

Date: October 01, 2020

Time: 7:30pm

Location: Conducted through Remote Participation using Zoom

### Minutes

Attendance: Commission Members Susan Chapnick (Chair), Pam Heidell, Dave Kaplan, Nathaniel Stevens, Chuck Tirone (Vice Chair), and David White; Associate Commissioners Cathy Garnett, Mike Gildesgame, and Doug Kilgour; and Conservation Agent Emily Sullivan. Members of the public included Susan Ann Kehler, Mary O'Connor, Dan Wells, Daniel St.Clair, Julia Kew, Martha Penzenik, Duke Bitsko, Andrew Keel, Jennifer Raitt, Christian Klein, Stephanie Kiefer, John Hession, Marti Nover, Todd Undzis, Ann LeRoyer, Brian Rehrig, Alan Jones, Elisabeth Carr-Jones, Andy Forbes, BethAnn Friedman, Brendan Horigan, Diane Mahon, Don Seltzer, Karen Grossman, Michelle Marshall, Paul Bontenia, Shawn O'Rourke, Steve Revilak, Susan Ann Kehler, Sue Fish, David Barlow, Anna O'Driscoll, Jeffrey Geller, Vasanthi Viswanathan, Charlie Darwin, Barbara Rowland, Bob DiBiase, Colin Blair, Cori Beckwith, Elaine Lyte, Gwendolen Noyes, Jennifer Griffith, Jennifer Susse, John Yurewicz, Kevin Mils, Marci Shapiro Ide, and Patrick Hanlon.

### 09/17/2020 Meeting Minutes

The Commission discussed edits to the draft 09/17/2020 minutes. N. Stevens motioned to approve the minutes as edited, D. White seconded, all were in favor, motion approved.

### **Request for Determination of Applicability: 1165R Massachusetts Avenue = Continued Public Hearing**

#### *Documents Reviewed:*

- 1) 1165R Mass Ave RDA
- 2) Letter from Town Counsel regarding Historic Mill Complexes Exemption
- 3) Supplemental Material Packet regarding Historic Mill Complexes, dated 09/10/2020 from Applicant
- 4) 1165R Mass Ave Ryder Brook Investigation, dated 09/09/2020, by Goddard Consulting
- 5) Supplemental Material Packet regarding Definition of a Stream under the State Wetlands Protection Act, dated 09/24/2020, by Goddard Consulting
- 6) Revised Historic Mill Complex Boundary, dated 09/24/2020, from Applicant
- 7) Memorandum 1167R Mass Ave RDA – "Stream" definition in 310 CMR 10.04, submitted by Nathaniel Stevens, dated 09/30/2020

#### *Resource Areas:*

- 1) *Mill Brook*
- 2) *100-ft Wetlands Buffer*
- 3) *200-ft Riverfront Area*
- 4) *Floodplain*

This RDA requested that the Commission review the jurisdiction of various resource areas under the Wetlands Protect Act only, within the boundaries of 1165-1167 Mass Ave and 0 Ryder St, also commonly referred to as Mirak 40B. The following three reviews are requested:

- Review the Riverfront Area to determine if the property contains a Historic Mill Complex as defined under the Massachusetts Wetlands Protection Act (WPA) Regulations 310 CMR 10.04.
- Review the Historic Mill Complex exemption request under the Riverfront Area regulations in 310 CMR 10.58(6)(k).
- Review the existing drainage ditch, known locally as Ryder Brook, and determine if it meets the definition of “stream” in 310 CMR 10.04.

This hearing was a continued hearing from the initial hearing for this RDA at the Commission’s 09/03/2020 and 09/17/2020 meetings. During the 09/17/2020 meeting, the Commission voted that 1) the property qualifies as a Historic Mill Complex and is exempt from the WPA’s Riverfront Standards, and 2) the extent of the Historic Mill Complex is as described and amended during the meeting, of which the Applicant will provide an updated delineation (revision referenced in document list above).

The Applicant’s consultant, D. Wells stated that the purpose of the RDA was to understand the full extent of jurisdiction to inform the future NOI filing under the Wetlands Protection Act (WPA). D. Wells presented supplemental materials to the Commission that had been requested at the 09/17/2020 meeting, including more information about the definition of a stream under the State’s Wetlands Protection Act (WPA). Attorney Winston-O’Connor presented her letter citing MassDEP administrative law decisions that she said supported a finding that Ryder Brook is not jurisdictional under the WPA.

N. Stevens summarized his memorandum to the Commission, dated 09/30/2020, clarifying the definition of a stream under the WPA. N. Stevens stated that the Massachusetts Association of Conservation Commissions also has guidance on interpreting the definition of stream under the WPA. N. Stevens stated that these guidance documents, plus administrative law decisions from MassDEP, state say that without upstream bordering vegetated wetlands, Ryder Brook is not considered a stream under the WPA. N. Stevens stated that he agreed with the Applicant that Ryder Brook is not jurisdictional under the WPA because it does not meet the WPA definition of a stream.

S. Chapnick stated that under the local bylaw, Ryder Brook is jurisdictional, but that since this RDA was filed under the WPA only, it is not jurisdictional. N. Stevens

confirmed that when the Commission wrote its regulations, it intentionally made this distinction.

P. Heidell motioned to confirm that the area presented as an existing drainage ditch known as Ruder Brook does not meet the definition of a stream under the WPA, D. Kaplan seconded. A roll call vote was taken and P. Heidell voted yes, C. Tirone voted yes, D. White voted to abstain, S. Chapnick voted yes, and N. Stevens voted to abstain. The motion was approved.

D. Kaplan requested that the Applicant document the previously approved Historic Mill Complex boundary with a metes and bounds survey. The Applicant's representative, M. O'Connor agreed to a metes and bounds survey of the Historic Mill Complex.

### **Notice of Intent: Wellington Park**

MassDEP File #091-0324

#### *Documents Reviewed:*

- 1) *Wellington Park NOI*
- 2) *Wellington Park NOI Supplemental Materials, dated 09/29/2020*
- 3) *Wellington Park Revised Biobasin and Swale Plan, dated 09/17/2020*

#### *Resource Areas:*

- 1) *100-ft Wetlands Buffer*
- 2) *Adjacent Upland Resource Area*
- 3) *Riverfront Area*
- 4) *Floodplain*

This hearing was a continued hearing from the initial hearing for this NOI at the Commission's 09/17/2020 meeting. A. Keel presented the supplemental materials requested during the Commission's 09/17/2020 meeting.

This project proposes additional amenities in Wellington Park, including more native plantings, an extended pathway, a bioretention basin, additional signage and seating, and an informal naturalized exploration area. A. Keel clarified that the proposed swale is a conveyance swale, not an infiltration swale.

A. Keel stated that since the 09/17/2020 hearing, the proposed water fountain had been removed from the project proposal. The budget estimated for the water fountain will instead be reallocated to the proposed plantings and funds for plant establishment and maintenance.

D. Kaplan noted that the revised Biobasin and Swale Plan calls out for 4"-6" stone, but should just call out 6" stone.

M. Gildesgame asked whether the proposed weir will be adhered in place. A. Keel confirmed the weir will be adhered in place.

P. Heidell asked that status of the MWRA 8m permit. A. Keel stated that MWRA had not yet issued a permit. P. Heidell recommended following up. P. Heidell asked how the project proposal would change if MWRA denied the 8m permit application.

A. Keel stated that the proposed bench by the informal play and exploration area was outside of the 100-year floodplain. D. White asked why the bench and informal play/exploration area location was selected since the informal play/exploration area is within the floodplain and the bench is just outside of the floodplain. A. Keel stated that the location for these amenities had been chosen in the planning process for the park conducted in 2017-2018.

P. Heidell asked if there was an alternative location for the informal play/exploration area and bench. D. Bitsko stated that the amenities could be moved on the other side of the pathway or on the same side of the pathway but further from the floodplain.

C. Tirone asked for clarification on the design of the informal play/exploration area and encroachment on the floodplain. D. Bitsko stated that the bench is outside of the floodplain so not creating encroachment. The boulders in the design are creating a small amount of encroachment but overall the proposed design would require 40 cubic feet of fill, but remove 600 cubic feet of area, creating a net increase of 540 cubic feet of compensatory flood storage.

P. Heidell stated that the overall floodplain storage improvements were good, but asked how much flooding the informal play/exploration area elements like the bench can withstand. A. Keel said all of the elements will be anchored and made of black locust wood, which is a very durable wood. D. Bitsko said that Fresh Pond Reservation has used black locust wood for some of its elements and they have held up very well.

S. Chapnick stated that she appreciates the adaptive components of the design, and that the park is able to withstand future flooding while being a valuable recreational asset when there is no flooding.

D. White and D. Kaplan also stated that they appreciated the design.

The Commission discussed possible special conditions, including:

1. Revising the Biobasin and Swale Plan so that 6" minimum stone is called out for construction. If water flow becomes too intense and displaces the 6" stone, then larger stone shall be installed.
2. Monitoring plant maintenance, invasive management, and plant survival for 3 years.
3. Sending the Commission the MWRA 8m permit approval. If the 8m permit request is not approved, the Applicant needs to request a minor plan amendment with the Commission.

D. Kaplan motioned to close the public hearing, D. White seconded, all were in favor, motion approved.

D. White motioned to approve the project for 35 Grove Street, Wellington Park under the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection with the special conditions discussed by the Commission, C. Tirone seconded , D. White voted to approve, D. Kaplan voted to approve, C. Tirone voted to approve, P. Heidell voted to approve, S. Chapnick voted to approve, N. Stevens abstained as he had missed the prior hearing, motion approved.

### **Request for Determination of Applicability: 26 Lakeview Street**

Arlington File # A20.5

*Documents Reviewed:*

- 1) 26 Lakeview Street RDA Packet

*Resource Areas:*

- 1) 100-ft Wetlands Buffer
- 2) Adjacent Upland Resource Area
- 3) Spy Pond

M. Penzenik, the Applicant's Representative, presented the project proposal. This project proposes an addition located within the 100-ft Wetlands Buffer and Adjacent Upland Resource Area of Spy Pond. The proposed addition will be built over currently impervious area, and therefore the addition will not increase impervious area onsite. The project also proposes to replace 40 square feet of ornamental plantings with native plantings.

M. Penzenik mentioned that the Commission issued a permit for a larger addition, which was never built, years ago. S. Chapnick asked for more information regarding the approved project. E. Sullivan stated that MassDEP File #091-0198 was approved on 2008 for an addition and some pathway work down to Spy Pond. N. Stevens recalled that the addition proposed in 2008 was larger than the addition currently proposed.

P. Heidell asked if the existing drywells could accommodate the new gutter connections. M Penzenik stated that she did not know, but that during construction the contractor would make that determination and ensure that there was enough capacity.

C. Tirone recommended that the Application close out MassDEP File #091-0198 with a Request for Certificate of Compliance. N. Stevens agreed that MassDEP File #091-0198 should be closed out, but that it should not impact the review of this RDA.

N. Stevens asked what type of equipment would be used to construct the addition. M. Penzenik said that all work would be done by hand, with no heavy machinery.

C. Tirone asked whether the existing retaining wall between the house and Spy Pond is raised above the ground level or flush with the ground. M. Penzenik said the retaining wall is flush with the ground.

S. Chapnick asked if the Commission could condition determinations. C. Tirone and N. Stevens said minor conditions could be applied. S. Chapnick asked whether erosion control conditions would be appropriate. N. Stevens said yes, erosion control conditions are appropriate.

D. Kaplan and C. Tirone agreed that erosion controls along the existing retaining wall were most appropriate. C. Tirone stated that a straw wattle would be sufficient, and that there was no need for a silt fence. N. Stevens recommended that the straw wattle be placed along the retaining wall, between the back deck and the edge of the property to capture the entire addition work area with erosion control measures.

C. Tirone asked where the construction spoils will go. M. Penzenik stated they would be stored outside of the 100-ft Wetlands Buffer.

C. Tirone stated that no concrete should be washed out near storm drains. N. Stevens observed that there were no storm drains near the construction area.

N. Stevens motioned to issue a negative determination for 26 Lakeview Street with the discussed conditions, that although the work is within jurisdiction it does not require a Notice of Intent (Negative Determination #3), C. Tirone seconded, all were in favor, motion approved.

The Determination conditions include:

- 1) erosion controls, such as a silt sock, shall be installed along the retaining wall shown on the approved plan
- 2) wash out stations shall not be near any catch basins
- 3) no materials are allowed to be stockpiled within the resource areas

### **Working Session: Thorndike Place Proposal**

The Conservation Commission met with the Thorndike Place Applicant's Engineer (BSC Group) and the Town's Third-Party Reviewer (BETA) to review application materials related to wetland resources and stormwater in advance of the Zoning Board of Appeals's 10/13/2020 hearing.

D. White recused himself from the working session.

S. Chapnick clarified that this is a Thorndike Place working session, not a public hearing. While there will be an opportunity for the public to provide feedback directly to the Conservation Commission at the end of the working session, members of the public are encouraged to send comments to the Zoning Board of Appeals.

The Applicant's Representative J. Hession presented the updated project proposal, comparing the September 2020 proposal to the March 2020 proposal. In the September 2020 proposal, the proposed townhomes from the March 2020 proposal have been eliminated, the footprint of the multi-family building has been modified, and the overall development footprint has been reduced. In the September 2020 proposal, the

proposed buildings have been entirely removed from the 25-foot No Disturb Zone and 100-foot Buffer/AURA, and minimal site improvements are proposed within the 100-foot Buffer/AURA. J. Hession stated that these revisions to the proposal were made by the Applicant because of the public comments received and the feedback that the Town and BETA Group provided to the Applicant on the March 2020 proposal. J. Hession stated that the revised proposal considers and better satisfies the standards of the Wetlands Protection Act and Arlington Bylaw for Wetlands Protection ~~more~~.

J. Hession stated that the wetlands had been delineated in January 2020, but will be delineated again this October due to issues with winter wetlands delineations.

J. Hession went through the submitted impact table, comparing the March 2020 proposal's impacts to the September 2020 proposal's impacts to resource areas including the floodplain, isolated wetlands, bordering vegetated wetlands, 25' No Disturb Zone, 100' Wetlands Buffer, and Adjacent Upland Resource Area (AURA).

J. Hession clarified that parking had been relocated to under the buildings to reduce new impervious area and respect resource areas.

S. Chapnick clarified that the wetlands delineation shown on the proposal has not been approved by the Conservation Commission.

N. Stevens noted that a row in the comparison table was missing data. The September 2020 table, row "100' Buffer/AURA isolated (local)" is missing data.

N. Stevens asked if BETA Group has reviewed the wetlands delineation. M. Nover from BETA stated that BETA was still waiting for the wetlands delineation field sheets and had not yet reviewed the delineation.

P. Heidell requested the floodplain encroachment volumes for the September 2020 proposal. P. Heidell asked if there was enough space to create 2:1 compensatory floodplain storage. P. Heidell also requested the stormwater calculations for the September 2020 proposal. P. Heidell noted that more than 5,000 square feet of fill in the floodplain was still a lot. She suggested that if 2:1 compensatory storage could not be provided, the building in the floodplain should be further reduced.

J. Hession stated that 2:1 compensatory storage would require tree and vegetation removal. J. Hession asked whether the Commission prioritized habitat over compensatory storage or vice versa.

J. Hession stated that during the 40B permit application process extensive engineering documentation is not required until a certain point to minimize project costs.

D. Kaplan asked what types of trees would be impacted by 2:1 compensatory flood storage – champion trees or invasive trees like Norway maples. D. Kaplan suggested



that the 2:1 compensatory storage could be used as a restoration effort if Norway maples are prolific in the area.

M. Nover and T. Undzis from BETA Group recommended that the Applicant assess the values and functions of the site to better understand the impact 2:1 compensatory flood storage would have.

C. Tirone stated that at this time it was unknown whether the ZBA would require the additional parking shown on the plan. C. Tirone asked how many units were removed between the March 2020 and September 2020 proposals. J. Hession estimated that 20-30 units were removed.

C. Tirone asked about the shading onsite, and the height of the proposed buildings. J. Hession estimated that each floor would be approximately 11-feet high, and the buildings would be either 3 or 4 floors. The proposal proposed the 3-story buildings closer to the neighborhood areas, and the 4-story buildings closer to the resource areas.

C. Tirone asked how the Applicant intended to manage the site's open space. C. Tirone asked if the open space would be gifted to the Town or if a Conservation Restriction would be placed on the land. J. Hession stated that the Applicant had not begun to discuss those options.

C. Tirone asked if the land was not gifted or if no Conservation Restriction was enacted, did the Applicant foresee a second phase of construction on the site. J. Hession reiterated that the Applicant had not begun to discuss open space preservation options.

S. Chapnick summarized the recommendations the Conservation Commission had for the Applicant:

- 1) conduct a wildlife assessment of the site
- 2) send the wetland delineation field notes to BETA Group for review
- 3) assess impact of possible flooding of underground parking
- 4) submit stormwater calculations to BETA Group and the Conservation Commission

S. Chapnick opened the working session up to public comment.

B. Rehrig emphasized the importance of an accurate wetlands delineation. B. Rehrig recommended a thorough investigation of the site's soils because the years of site neglect and illegal dumping may have impacted wetland vegetation species, so soil investigation would likely be more accurate.

K. Grossman asked whether the parking areas, road areas, and pathways would be surfaced with an impervious or pervious material.

B. DiBiase asked how much excavation was required for underground parking. B. DiBiase asked how excavation would impact local water infiltration, local water flow across adjacent parcels, and flooding in the area.

S. Kiefer, the Applicant's legal counsel, thanked the Conservation Commission for this working session and discussion. On behalf of the Applicant, S. Kiefer thanked everyone in attendance for the opportunity to collaborate. S. Kiefer stated that the ZBA will have competing interests onsite, such as parking requirements and compensatory flood storage.

C. Klein, the ZBA Chair, thanked the Conservation Commission for hosting the working session. C. Klein asked all members of the public to submit feedback and comment directly to the ZBA.

S. Chapnick and N. Stevens agreed to work together to draft the recommendations the Conservation Commission discussed in a letter to the ZBA in advance of its 10/13/2020 hearing.

N. Stevens motioned to close the Commission meeting, D. Kaplan seconded, all were in favor, motioned approved.

Meeting adjourned at 10:12pm.

DRAFT



## Town of Arlington, Massachusetts

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### Review draft 10/15/2020 minutes

#### Summary:

Review draft 10/15/2020 minutes.

#### ATTACHMENTS:

Type	File Name	Description
Minutes	10152020_Minutes_Conservation_Commission.pdf	10152020 draft minutes



## **Arlington Conservation Commission**

Date: October 15, 2020

Time: 7:30pm

Location: Conducted through Remote Participation using Zoom

### **Minutes**

Attendance: Commission Members Susan Chapnick (Chair), Mike Gildesgame, Pam Heidell, Dave Kaplan, Nathaniel Stevens, Chuck Tirone (Vice Chair), and David White; Associate Commissioners Cathy Garnett and Doug Kilgour; and Conservation Agent Emily Sullivan

### **ZBA Update on Thorndike Place**

S. Chapnick summarized the ZBA's 10/13/2020 hearing on Thorndike Place. The ZBA has modified its project hearing schedule for this project, and has rescheduled the wetlands and stormwater hearing to 11/24/2020.

### **Process for Commission Comment Letters**

The Commission discussed its process for providing comment letters for 40B projects and other projects relevant to Conservation or within Commission jurisdiction. The Commission agreed that special working groups could draft letters and then present them to the full Commission at the next Commission meeting. If the Commission does not have a meeting scheduled before comment deadline, D. Kaplan said the Commission could call a special meeting specifically for review of the comment letter. N. Stevens stated that if E. Sullivan drafts a comment letter, she can send it out to the Commission asking for feedback to be sent directly back to her similar to the process for meeting minutes. E. Sullivan, and not a Commissioner, would have to draft the letter in order to comply with Open Meeting Law.

### **Spy Pond Sand Bar Project Update**

E. Sullivan stated that MassDOT has hired a contractor for the Spy Pond sand bar dredging, and that work will begin this fall depending on water level. The pond's current water level is too low for hydraulic dredging.

### **Request for Certificate of Compliance: 26 Lakeview Street**

MassDEP File #091-0198

*Documents Reviewed:*

- 1) *26 Lakeview Street Order of Conditions*
- 2) *26 Lakeview Street Request for Certificate of Compliance*

*Resource Areas:*

- 1) *100-ft Wetlands Buffer*

- 2) *Adjacent Upland Resource Area*
- 3) *Spy Pond*

The Commission reviewed the request for a Certificate of Compliance for MassDEP File #091-0198. The project was approved on 08/28/2008 to construct an addition. The project was never constructed, and during its 10/01/2020 meeting, the Commission approved a smaller addition at the same site. N. Stevens motioned to issue a Certificate of Compliance with an Invalid Order of Conditions, D. White seconded, all were in favor, motioned passed.

**Request for Extension of Order of Conditions: 19R Park Avenue, Downing Square  
MassDEP File #091-0287**

*Documents Reviewed:*

- 1) *19R Park Ave Notice of Intent*
- 2) *19R Park Ave Order of Conditions*
- 3) *19R Park Ave Request for Extension of Order of Conditions*

*Resource Areas:*

- 1) *100-ft Wetlands Buffer*
- 2) *Adjacent Upland Resource Area*
- 3) *Floodplain*
- 4) *No Name Brook*

The project as approved included the construction of two buildings, containing 34 residential units with associated site improvements, including parking area, pedestrian pathways, landscaping, lighting, stormwater management, and utilities. The project was approved on 12/07/2017 and did not start until mid-2019. The site is currently under construction, and has been inspected multiple times by the Commission and found to be in compliance. The Applicant requested an extension due to delayed construction start, and construction complications as a result of COVID-19.

N. Stevens motioned to grant the three year extension until 12/07/2023, D. White seconded, all were in favor, motion approved.

**Regulatory Update: Stormwater Management Section**

The Commission reviewed and discussed Section 33: Stormwater Management for the Arlington Regulations for Wetlands Protection.

The Commission agreed that the following sections should be reviewed next:

- Climate Change Resiliency (S. Chapnick and D. White)
- Bordering Land Subject to Flooding/Floodplain (P. Heidell and D. Kaplan)
- Vegetation Removal and Replacement (C. Garnett and M. Gildesgame)
- Prohibited Materials (C. Tirone)
- Jurisdiction (C. Tirone)

N. Stevens motioned to close the Commission meeting, D. Kaplan seconded, all were in favor, motioned approved.

Meeting adjourned at 9:20pm.

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## Town of Arlington, Massachusetts

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### Regulation Update

#### Summary:

Regulations Update:

Section 33 Stormwater Management

Section 31: Climate Change Resilience

Section 23: Floodplain

#### ATTACHMENTS:

Type	File Name	Description
▢ Reference Material	Section_33_Stormwater_Management_2020Updated.pdf	Section 33: Stormwater Management
▢ Reference Material	Section_31_Climate_Change_Resilience.pdf	Section 31: Climate Change Resilience
▢ Reference Material	Section_23_Floodplain.pdf	Section 23: Floodplain

**Section 33 - Stormwater Management**

A. To the extent that standards for Stormwater Management in 310 CMR 10.05 (6)(k) and the requirements of Arlington's Stormwater Mitigation Bylaw are applicable, projects shall meet those standards. Nothing in these Regulations is intended to replace or be in derogation of the requirements of the Wetland Protection Act (310 CMR) or the Town of Arlington's Stormwater Mitigation Bylaw (Article 15) and Stormwater Management Rules and Regulations administered by the Town of Arlington's Engineering Division. In the case of conflict between the regulations, the more stringent provisions shall apply. Should a project require a Stormwater Permit under Article 15 and approval of the Conservation Commission, the Applicant shall obtain approval of the Stormwater Management permit prior to the closing of a public hearing by the Conservation Commission. Should an Applicant fail to obtain such approval, the Conservation Commission shall deny the permit for the project.

B. Stormwater management design for all projects (including projects that do not require a Stormwater Management Report under 310 CMR 10.05 (6)(k) or projects that are exempt under Arlington's Stormwater Management Rules and Regulations) specified in a request for determination of applicability or an application for a permit shall accomplish the following:

- 1) Not exacerbate or create flooding conditions and shall not result in an increase in the peak rate of stormwater runoff over existing conditions during storm events.
- 2) Reduce stormwater pollution to the maximum extent possible. Low Impact Development techniques listed in the Massachusetts Stormwater Handbook, (LID BMPs) should be prioritized for their positive impact on overall site climate change resilience, improvements to water quality, and ability to handle water quantity. Depending upon the type of project proposed, this may include but not be limited to reduction in impervious surfaces, bio-retention (rain gardens) and infiltration systems.
- 3) Have an operation and maintenance plan to inspect, properly maintain, and repair installed BMPs after project completion to ensure they are functioning according to the design intent in perpetuity.

C. The rainfall amounts used for design and analysis shall be based on NOAA Atlas 14 Volume 10 Precipitation Frequency Estimates for Arlington. Calculations shall show existing and proposed runoff conditions for comparative purposes and include a narrative on the proposed project's impact on climate change resilience of the resource area (see Section 31).

**Comment [ES1]:** Confirm reference, just eastern United States?

D. The requirements of this section shall be administered by the Commission commensurate with the nature, scope, type, and cost of the proposed project or activity.



## **Section 31 – Climate Change Resilience**

A. The impacts of climate change can adversely affect each Resource Area's ability to provide and promote the resource area values protected by the Bylaw. (See definitions of "adaptation" and "alter" and "impacts of climate change" in Section 4 above). Resource Areas are critical to building a community's resilience/adaptation to the impacts of climate change due to their ability to provide for flood control, storm damage prevention, and other Resource Area Values.

B. The Applicant shall, to the extent practicable and applicable as determined solely by the Commission, integrate considerations of adaptation planning into their project to promote climate change resilience so as to protect and promote resource area values into the future. These considerations are especially important in Land Subject to Flooding (floodplain) and Riverfront Area and other Resource Areas which protect the interest of Flood Control and Storm Damage Prevention, including Adjacent Upland Resource Areas. These Resource Areas may be directly impacted by extreme weather events expected to be more prevalent or more intense due to climate change, in surface runoff of pollutants, and in wildlife habitat due to changes in temperature.

The Applicant shall consider the project's adaptation to potential climate change impacts by addressing the following:

- (1) Describe project design considerations to limit storm and flood damage during extended periods of disruption and flooding as might be expected in extreme weather events. See Vegetative Wetlands Section 21, Land Subject to Flooding Section 23, and Adjacent Upland Resource Area Section 25, of these Regulations.
- (2) Describe project stormwater surface runoff, which may increase due to storm surges and extreme weather events, and how this will be managed / mitigated to prevent pollution (including nutrients from fertilizers, roadway runoff, etc.) from entering the resource area with consideration of eliminating impervious surfaces as feasible. See Stormwater Management Section 33 of these Regulations.
- (3) Describe project vegetation / planting plans and other measures to improve the resiliency of the wildlife habitat of the resource area to withstand potential temperature and rainfall changes (drought and excess) due to climate change. See Vegetation Removal and Replacement Section 24 of these Regulations.
- (4) Describe measures to protect proposed structures and minimize damage to structures due to the impacts of climate change.

## **Section 23 - Land Subject to Flooding (Bordering and Isolated)**

### **A. Findings.**

#### **(1) Bordering land subject to flooding.**

- (a) Bordering land subject to flooding is an area which floods from a rise in a bordering waterway or water body. Such areas are presumed to be significant to flood control and storm damage prevention and protection of surrounding land and other homes or buildings. In these ways, bordering land subject to flooding is important in mitigating the negative impacts of climate change.
- (b) Bordering land subject to flooding provides a temporary storage area for floodwater which has overtopped the bank of the main channel of a creek, brook, river or stream or the basin of a pond or lake. During periods of peak runoff, floodwaters are both retained (i.e., slowly released through evaporation and percolation) and detained (slowly released through surface discharge) by bordering land subject to flooding. Over time, incremental filling of these areas causes increases in the extent and level of flooding by eliminating flood storage volume or by restricting flows, thereby causing increases in damage to public and private properties and downstream resource areas.
- (c) The hydrologic regime, plant community and structure, topography, soil, and proximity to water bodies or vegetated wetlands provide important food, shelter, migratory, and overwintering areas, and breeding for wildlife.
- (d) The hydrologic regime, surrounding plant community, topography, soil, and proximity to water bodies or vegetated wetlands make bordering land subject to flooding allow vegetation to successfully grow in these areas.

#### **(2) Isolated land subject to flooding.**

- (a) Isolated land subject to flooding is an isolated depression or a closed basin which serves as a ponding area for runoff or high groundwater which has risen above the ground surface. Such areas are likely to be locally significant to flood control and storm damage prevention. In this way, isolated land subject to flooding is important in mitigating the impacts of climate change. In addition, where such areas are underlain by pervious material they are likely to be significant to public or private water supply and to groundwater supply. Where such areas are underlain by pervious material covered by a mat of organic peat and muck, they are also likely to be significant to the prevention of pollution. Isolated land subject to flooding provides important breeding habitat for amphibians and some rare plants. Isolated land subject to flooding provides a temporary storage area where runoff and high groundwater pond and slowly evaporate or percolate into the substrate. Filling causes lateral displacement of the ponded water onto contiguous properties, which may result in damage to said properties.
- (b) Isolated land subject to flooding, where it is underlain by pervious material, provides a point of exchange between groundwater and surface waters. Contaminants introduced into said area, such as road salts, find easy access into the groundwater. Where these conditions occur and a mat of organic peat or muck covers the substrate of the area, said mat serves to detain and remove contaminants which might otherwise enter the groundwater.

B. Definitions, critical characteristics and boundaries.

(1) Bordering land subject to flooding.

- (a) Bordering land subject to flooding is an area with low, flat topography adjacent to and inundated by floodwaters rising from brooks, creeks, rivers, streams, pond or lakes. It extends from the banks of these waterways and water bodies; where a bordering vegetated wetland occurs, it extends from said wetland.
- (b) The topography and location of bordering land subject to flooding specified in the foregoing Subsection B(1)(a) are critical to the protection of the interests specified in subsection A(1) above.
- (c) The boundary of bordering land subject to flooding is the estimated or observed maximum lateral extent of floodwater which will theoretically result or has resulted from the statistical 1%-annual-chance flood (also known as the one-hundred-year-frequency storm).
  - 1. Said boundary shall be that determined by reference to the most recently available flood profile data prepared for the Town of Arlington within which the work is proposed under the National Flood Insurance Program (NFIP, currently administered by the Federal Emergency Management agency, successor to the U.S. Department of Housing and Urban Development). Said boundary, so determined, shall be presumed accurate. This presumption may be overcome only by credible evidence from a registered professional engineer or other professional competent in such matters.
  - 2. Notwithstanding the foregoing, where NFIP profile data is unavailable or is determined by the Commission to be outdated, inaccurate or not reflecting current conditions, the boundary of bordering land subject to flooding shall be the maximum lateral extent of floodwater which has been observed or recorded or the Commission may require the applicant to determine the boundary of Bordering Land Subject to Flooding by engineering calculations which shall be:
    - i. based upon a design storm of 8.48 inches of precipitation in 24 hours (from "Cornell" atlas);
    - ii. based upon the standard methodologies set forth in U.S. Soil Conservation Service Technical Release No. 55, Urban Hydrology for Small Watersheds and Section 4 of the U.S. Soil Conservation Service, National Engineering Hydrology Handbook; and
    - iii. prepared by a registered professional engineer or other professional competent in such matters.

(2) Isolated land subject to flooding.

- (a) Isolated land subject to flooding is an isolated depression or closed basin without an inlet or an outlet. It is an area which at least once a year confines standing water. Isolated land subject to flooding may be underlain by pervious material, which in turn may be covered by a mat of peat or muck.
- (b) The characteristics specified in the foregoing Subsection B(2)(a) are critical to the protection of the interests specified in Subsection A(2) above.
- (c) The boundary of isolated land subject to flooding is the perimeter of the largest observed or recorded volume of water confined in said area.

C. No activity, other than the maintenance of an already existing structure, which will result in the building within or upon, or removing, filling, dredging or altering of, land subject to flooding shall be conducted without written permission of the Conservation Commission.

D. The Commission may permit activity on land subject to flooding provided it shall not result in the following:

- (1) Flood damage due to filling which causes lateral displacement of water that would otherwise be confined within said area;
- (2) Adverse effect on public and private water supply or groundwater supply, where said area is underlain by pervious material;
- (3) An adverse effect on the capacity of said area to prevent pollution of the groundwater, where the area is underlain by pervious material which in turn is covered by a mat of organic peat and muck.

The applicant shall take into consideration the impacts of climate change on the activities proposed on land subject to flooding, especially in terms of the compensatory flood storage as a climate change resilience strategy. Any such activity shall provide compensatory flood storage for all flood storage volume that will be lost at each elevation. Compensatory flood storage shall be at a 2:1 ratio, minimum, for each unit volume of flood storage lost at each elevation. Compensatory flood storage shall mean a volume not previously used for flood storage, shall have an unrestricted hydraulic connection to the same waterway or water body, and, with respect to waterways, shall be provided within the same reach of the river, stream, or creek. No new parking areas or garages shall be used as compensatory flood storage. The Commission has found that use of such areas or garages results in a significant or cumulative effect upon the resource area values protected by the Bylaw, and has found that these facilities can result in the uncontrolled acute or chronic release of these harmful materials into the resource areas protected by the Bylaw. The Commission has also found that using these structures for flood storage can result in the damage of vehicles and property under flooding conditions.

E. No work shall be performed within 50 feet of land subject to flooding that abuts an estimated habitat area as designated on the most current map prepared by the Massachusetts Natural Heritage and Endangered Species Program unless the Applicant can demonstrate by a preponderance of credible evidence that the work will not have any short term or long term adverse effect on the resource area values protected by the Bylaw.



## Town of Arlington, Massachusetts

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### Notice of Intent

#### Summary:

#### Notice of Intent: Department of Public Works, 51 Grove Street

MassDEP File #091-0326

This project proposes a new/renovated Municipal Facility to support the Department of Public Works (DPW), Inspectional Services Department (ISD), Facilities, and IT departments at 51 Grove Street. The proposed site includes the current 4.4-acre parcel, used by DPW / ISD, and an adjacent 1.4-acre portion of Town-owned land for a total of 5.8 acres. Sections of the site are within the 100-ft Wetlands Buffer, AURA, and 200-ft Riverfront Area of Mill Brook, as well as floodway and floodplain.

#### ATTACHMENTS:

Type	File Name	Description
☐ Notice of Intent	DPW_NOI_compressed.pdf	DPW NOI
☐ Notice of Intent	DPW_NOI_Plans.pdf	DPW NOI Plans

## Notice of Intent



October 2020

DPW FACILITY

PREPARED FOR:  
TOWN OF ARLINGTON

SUBMITTED TO:  
ARLINGTON CONSERVATION COMMISSION



Arlington – DPW Facility  
WSE Project No. 2170997

October 22, 2020

Arlington Conservation Commission  
730 Mass Ave. Annex  
Arlington, MA 02476;

**Re:    *NOI Filing  
        DPW Facility  
        51 Grove Street***

Dear Members of the Commission:

On behalf of the Town of Arlington, Weston & Sampson Engineers, Inc. is hereby enclosing seven (7) copies (including original) and an electronic copy of the Notice of Intent submittal (including plans) to fulfill the requirements of the Massachusetts Wetlands Protection Act, M.G.L. Chapter 131, Section 40 submittal requirements and the Town of Arlington submittal requirements. This submittal is a formal Notice of Intent for the upgraded DPW Facility at 51 Grove Street.

As part of the filing, we have attached the following:

Appendix A:   Project Description  
Appendix B:   Alternatives Analysis  
Appendix C:   Stormwater Report  
Appendix D:   Project Maps  
Appendix E:   Project Specifications  
Appendix F:   Abutters Information  
Appendix G:   Photos

If you have any questions regarding this submittal, please contact me at (978) 532-1900.

Very truly yours,

WESTON & SAMPSON



Alexandra Gaspar  
Environmental Scientist



Enter your transmittal number

X286794

Transmittal Number

Your unique Transmittal Number can be accessed online:

<http://www.mass.gov/eea/agencies/massdep/service/approvals/transmittal-form-for-payment.html>

Massachusetts Department of Environmental Protection

## Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

**Copy 1 - the original** must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP  
P.O. Box 4062  
Boston, MA  
02211

**\* Note:**  
For BWSC Permits, enter the LSP.

### A. Permit Information

WPA Form 3

Wetlands NOI

1. Permit Code: 4 to 7 character code from permit instructions

2. Name of Permit Category

DPW Facility

3. Type of Project or Activity

### B. Applicant Information – Firm or Individual

Arlington Department of Public Works

1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. **Last Name** of Individual

3. **First Name** of Individual

4. MI

51 Grove Street

5. Street Address

Arlington

MA

02476

781-316-3101

6. City/Town

7. State

8. Zip Code

9. Telephone #

10. Ext. #

Michael Rademacher

mrademacher@town.arlington.ma.us

11. Contact Person

12. e-mail address

### C. Facility, Site or Individual Requiring Approval

Arlington DPW Facility

1. Name of Facility, Site Or Individual

51 Grove Street

2. Street Address

Arlington

MA

02476

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

8. DEP Facility Number (if Known)

9. Federal I.D. Number (if Known)

10. BWSC Tracking # (if Known)

### D. Application Prepared by (if different from Section B)\*

Weston & Sampson Engineers

1. Name of Firm Or Individual

55 Walkers Brook Drive, Suite 100

2. Address

Reading

MA

01867

978-532-1900

3. City/Town

4. State

5. Zip Code

6. Telephone #

7. Ext. #

Alexandra Gaspar

8. Contact Person

9. LSP Number (BWSC Permits only)

### E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no  
If yes, enter the project's EOE file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

### F. Amount Due

#### Special Provisions:

1. ☒ **Fee Exempt** (city, town or municipal housing authority)(state agency if fee is \$100 or less).  
*There are no fee exemptions for BWSC permits, regardless of applicant status.*
2. ☐ **Hardship Request** - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ **Alternative Schedule Project** (according to 310 CMR 4.05 and 4.10).
4. ☐ **Homeowner** (according to 310 CMR 4.02).

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Check Number

Dollar Amount

Date





**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

# WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

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City/Town

**Important:**

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:  
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

## A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

51 Grove Street

a. Street Address

Arlington

b. City/Town

02476

c. Zip Code

Latitude and Longitude:

42deg25'10.953"N

d. Latitude

71deg9'49.85"W

e. Longitude

54-3-2.A

f. Assessors Map/Plat Number

g. Parcel /Lot Number

2. Applicant:

Michael

a. First Name

Rademacher

b. Last Name

Director of Public Works

c. Organization

51 Grove Street

d. Street Address

Arlington

e. City/Town

MA

f. State

02476

g. Zip Code

781-316-3101

h. Phone Number

i. Fax Number

mrademacher@town.arlington.ma.us

j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name

b. Last Name

c. Organization

d. Street Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email address

4. Representative (if any):

Alexandra

a. First Name

Gaspar

b. Last Name

Weston & Sampson Engineers

c. Company

55 Walkers Brook Dr, Suite 100

d. Street Address

Reading

e. City/Town

MA

f. State

01867

g. Zip Code

978-532-1900

h. Phone Number

i. Fax Number

gaspara@wseinc.com

j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

exempt

a. Total Fee Paid

b. State Fee Paid

c. City/Town Fee Paid



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

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**A. General Information (continued)**

6. General Project Description:

Upgrades to the Arlington DPW

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Single Family Home                        | 2. <input type="checkbox"/> Residential Subdivision       |
| 3. <input type="checkbox"/> Commercial/Industrial                     | 4. <input type="checkbox"/> Dock/Pier                     |
| 5. <input type="checkbox"/> Utilities                                 | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation                |
| 9. <input checked="" type="checkbox"/> Other                          |   |

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR 10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Middlesex

a. County

9705

c. Book

b. Certificate # (if registered land)

6

d. Page Number

**B. Buffer Zone & Resource Area Impacts (temporary & permanent)**

- ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- ☒ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



**Massachusetts Department of Environmental Protection**  
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**B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)**

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding	3,725 1. square feet 0 3. cubic feet of flood storage lost	3,725 2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Mill Brook 1. Name of Waterway (if available) - <b>specify coastal or inland</b>	

2. Width of Riverfront Area (check one):

- ☐ 25 ft. - Designated Densely Developed Areas only
- ☐ 100 ft. - New agricultural projects only
- ☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 30,417  
square feet

4. Proposed alteration of the Riverfront Area:

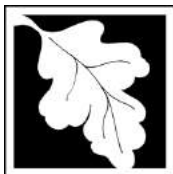
<u>30,417</u>	<u>16,973</u>	<u>13,444</u>
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

**Note:** for coastal riverfront areas, please complete **Section B.2.f.** above.



**Massachusetts Department of Environmental Protection**  
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# **WPA Form 3 – Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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## **B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)**

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:  
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	1. square feet _____ 2. cubic yards dredged _____	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	1. square feet _____	2. cubic yards beach nourishment _____
e. <input type="checkbox"/> Coastal Dunes	1. square feet _____	2. cubic yards dune nourishment _____
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	1. linear feet _____	
g. <input type="checkbox"/> Rocky Intertidal Shores	1. square feet _____	
h. <input type="checkbox"/> Salt Marshes	1. square feet _____	2. sq ft restoration, rehab., creation _____
i. <input type="checkbox"/> Land Under Salt Ponds	1. square feet _____	
	2. cubic yards dredged _____	
j. <input type="checkbox"/> Land Containing Shellfish	1. square feet _____	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	1. cubic yards dredged _____	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	1. square feet _____	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW \_\_\_\_\_

b. square feet of Salt Marsh \_\_\_\_\_

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings \_\_\_\_\_

b. number of replacement stream crossings \_\_\_\_\_



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**C. Other Applicable Standards and Requirements**

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

**Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review**

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to [http://maps.massgis.state.ma.us/PRI\\_EST\\_HAB/viewer.htm](http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm).

- a. ☐ Yes ☒ No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program**  
**Division of Fisheries and Wildlife**  
**1 Rabbit Hill Road**  
**Westborough, MA 01581**

2020

b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review\*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area

percentage/acreage

(b) outside Resource Area

percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work \*\*

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

\* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

\*\* MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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**D. Additional Information (cont'd)**

3. ☒ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Arlington Town Yard Facility

a. Plan Title

Weston & Sampson Engineers

b. Prepared By

10/22/2020

d. Final Revision Date

Laurence F. Keegan, Jr, PE

c. Signed and Stamped by

1"=30'

e. Scale

f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.
6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
8. ☒ Attach NOI Wetland Fee Transmittal Form
9. ☒ Attach Stormwater Report, if needed.

**E. Fees**

1. ☒ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



**Massachusetts Department of Environmental Protection**  
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**C. Other Applicable Standards and Requirements (cont'd)**

- (c) ☐ MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

*Projects altering 10 or more acres of land, also submit:*

- (d) ☐ Vegetation cover type map of site
- (e) ☐ Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.  
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # \_\_\_\_\_ b. Date submitted to NHESP \_\_\_\_\_

3. ☐ Separate MESA review completed.  
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. ☒ Not applicable – project is in inland resource area only      b. ☐ Yes    ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -  
Southeast Marine Fisheries Station  
Attn: Environmental Reviewer  
836 South Rodney French Blvd.  
New Bedford, MA 02744  
Email: [dmf.envreview-south@mass.gov](mailto:dmf.envreview-south@mass.gov)

Division of Marine Fisheries -  
North Shore Office  
Attn: Environmental Reviewer  
30 Emerson Avenue  
Gloucester, MA 01930  
Email: [dmf.envreview-north@mass.gov](mailto:dmf.envreview-north@mass.gov)

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

- c. ☐ Is this an aquaculture project?      d. ☐ Yes    ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

**WPA Form 3 – Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Arlington

City/Town

**C. Other Applicable Standards and Requirements (cont'd)**

**Online Users:**

Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?  
a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
- b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?  
a. ☐ Yes ☒ No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?  
a. ☐ Yes ☒ No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?  
a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:  
1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)  
2. ☐ A portion of the site constitutes redevelopment  
3. ☐ Proprietary BMPs are included in the Stormwater Management System.  
b. ☐ No. Check why the project is exempt:  
1. ☐ Single-family house  
2. ☐ Emergency road repair  
3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

**D. Additional Information**

- ☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

**Online Users:** Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. ☒ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.





**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

**WPA Form 3 – Notice of Intent**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number

Document Transaction Number

City/Town

**F. Signatures and Submittal Requirements**

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

10/21/2020

3. Signature of Property Owner (if different)

4. Date

10/21/2020

5. Signature of Representative (if any)

6. Date

**For Conservation Commission:**

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

**For MassDEP:**

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

**Other:**

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection  
Bureau of Resource Protection - Wetlands  
**NOI Wetland Fee Transmittal Form**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



## A. Applicant Information

### 1. Location of Project:

51 Grove Street

a. Street Address

exempt

c. Check number

Arlington

b. City/Town

d. Fee amount

### 2. Applicant Mailing Address:

Michael

a. First Name

Director of Public Works

c. Organization

51 Grove Street

d. Mailing Address

Arlington

e. City/Town

781-316-3101

h. Phone Number

MA

f. State

02476

g. Zip Code

mrademacher@town.arlington.ma.us

j. Email Address

i. Fax Number

### 3. Property Owner (if different):

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

## B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

**Step 1/Type of Activity:** Describe each type of activity that will occur in wetland resource area and buffer zone.

**Step 2/Number of Activities:** Identify the number of each type of activity.

**Step 3/Individual Activity Fee:** Identify each activity fee from the six project categories listed in the instructions.

**Step 4/Subtotal Activity Fee:** Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

**Step 5/Total Project Fee:** Determine the total project fee by adding the subtotal amounts from Step 4.

**Step 6/Fee Payments:** To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

# NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

### B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
EXEMPT			EXEMPT
Step 5/Total Project Fee:			EXEMPT

### Step 6/Fee Payments:

Total Project Fee:	a. Total Fee from Step 5
State share of filing Fee:	b. 1/2 Total Fee <b>less</b> \$12.50
City/Town share of filling Fee:	c. 1/2 Total Fee <b>plus</b> \$12.50

### C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection  
Box 4062  
Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

**To MassDEP Regional Office** (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

## Appendix A

## PROJECT DESCRIPTION

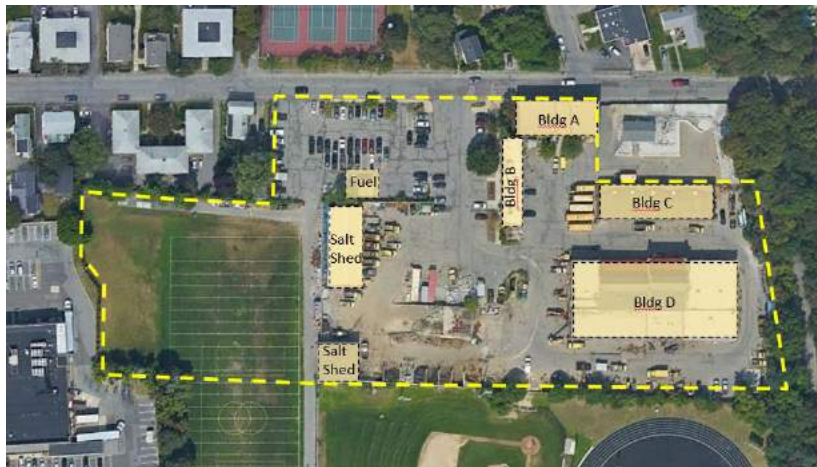
### Background

The Town of Arlington is proposing a new Project to support the Department of Public Works and other Town operations. The existing buildings are outdated, undersized, and contain many code deficiencies and inefficiencies to properly support operations. The Project is part of the site's Master Plan for a Town Wide Campus, including the High School, Public Works, Inspectional Services Department (ISD), Facilities, and Information Technology (IT). The High School project has recently been permitted. This Permit Application is for the remaining aspects of the Master Plan.

The new project is located at the existing Public Works site, 51 Grove Street. The new facility is sized to properly accommodate modern Public Works operations, ISD, Facilities, and IT. The project includes Renovation of four existing buildings, construction of one new building, site improvements, and construction of ancillary support features.

### Site Description

The Project site is located on Grove Street, immediately northwest of the High School. It is bound easterly by a National Grid natural gas facility and the Minuteman Commuter Bike Way. Westerly of the property are residences and a grocery store. North of the property, across Grove street, are residences and tennis courts. There are six existing buildings on the Public Works site. The Public Works property is approximately 5.8 acres and is predominately paved. The area that is currently being used as a field to the southwest of the buildings, is constructed over an



area of contaminated soil and has an impermeable cap just beneath the surface, essentially rendering the field area impervious as well. Site grades are generally flat.

Running North to south through the property is Mill Brook. From the property line at Grove Street, the Brook runs in a stone lined channel for approximately 37 feet, before entering a culvert. This channel is a regulatory floodway per FEMA mapping. From the end of the stone channel, the Brook enters a culvert. The culvert daylights at two locations on the property. Each of these openings and the area surrounding them are part of the 100-year flood zone per FEMA mapping.



Riverfront areas and wetland buffer zones extend from the stone lined channel and from the culvert openings. These resources area buffer zones are predominately impervious with approximately 2,000 square feet of vegetated areas (<12% of the buffer zone) consisting of mainly non-native species.

### **Scope of Work**

The Project involves the renovation of four buildings and the construction of one new building, plus the replacement of operations support features such as the fuel island and the salt shed. As part of this effort, two of the existing salt shed buildings will be demolished. The new nearly 30,000 square foot building will include interior vehicle storage, office space, maintenance bays, vehicle washing, and other operational support features. A new salt shed will also be constructed. The salt shed will allow for delivery vehicles to dump salt directly in the building; thereby minimizing cleanup and remnants exterior to the building.

Work within the riverfront area and the 100-foot wetland buffer zone include site improvements and minor grade changes. A portion of the new building will also lie within these areas. There will be a reduction in impervious surfaces within these areas.

The stormwater design report is included as Appendix C. Site stormwater improvements include:

- Catch basins will be replaced with deep sump hooded catch basins
- Three (3) Hydrodynamic separators will be installed
- An underground chamber detention system will be installed to control peak flows.

In addition to the improved stormwater features, the Project includes the following additional features to improve the overall integrity of stormwater and the environment:

- Improved storage of vehicles, equipment and materials (maximize indoor vs. outdoor)
- Improved storage and handling of liquid petroleum products
- Improved vehicle washing operations (no discharge to stormwater system)

Landscape areas will be planted with native species.

### **Environmental Considerations**

Before ground disturbance activities commence, erosion control BMPs will be installed, including compost filter tubes with silt fence and strawbales will be used around the stream openings, and inlet protection around existing structures. Please see Appendix C for the project's Construction Period Pollution and Erosion and Sedimentation Control Plan, located in Attachment G of the stormwater report.

Several resource areas protected by both the Arlington Conservation Commission Bylaw and the Massachusetts Wetlands Protection Act will be impacted as part of this project.

This includes 200' Riverfront Area and Bordering Land Subject to Flooding. Areas impacted that are protected by the Town of Arlington include the boundaries of 25-ft, 50-ft, 75-ft, and 100-ft from the resource area (Top of Bank of Mill Creek).

#### Riverfront Area

Since Mill Brook is considered a perennial stream, a 200-foot Riverfront Area is associated with it. While Mill Brook flows through the entirety of the site, only the 3 daylighted areas have riverfront associated with them. There will be 16,973 sf of impact to the 0-100' riverfront, and 13,444 sf of impact to the 100'-200' riverfront. These impacts are to accommodate general site improvements, and minor grade changes. The area where work will occur (51 Grove Street) is considered already altered area (primarily paved area). As such, since the limit of work is fully within the riverfront area, work at this site is considered re-development work in riverfront area. Each standard for work in riverfront for redevelopment projects area (per 310 CMR 10.58 (5)) are provided below, followed by an explanation on how the project meets each standard.

**(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40.**

Because work will involve the planting of native species, this project will result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40.

**(b) Stormwater management is provided according to standards established by the Department.**

Per Appendix C of the Notice of Intent, this project will adhere to the stormwater standards established by the Department.

**(c) Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).**

The work in the riverfront area will all be within already altered area (pavement and existing structure). The project will provide improved habitat with a variety of native species being planted at the site.

**(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).**

Work will not be outside the riverfront area or toward the riverfront area boundary, however the work will be in accordance with 310 CMR 10.58(5)(f) as much of the work is within a degraded riverfront area (pavement, which does not provide optimal riverfront area habitat).

**(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).**

The area of proposed work within the riverfront area is 30,417 sf. Total riverfront area on the parcel is 30,417 sf. Thus, 100 percent of the site's riverfront area will be altered. The work will be in accordance with 310 CMR 10.58(5)(f) as all of the work is within a degraded riverfront area consisting of pavement and existing structure.

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

1. removal of all debris, but retaining any trees or other mature vegetation;
2. grading to a topography which reduces runoff and increases infiltration;
3. coverage by topsoil at a depth consistent with natural conditions at the site; and
4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;

Restoration efforts will include the creation of pervious area in the form of native plantings.

(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 through 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Energy and Environmental Affairs.

Not applicable.

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

Per Arlington conservation commission requirements, the area will be monitored for three years to ensure success of planting areas.



#### Bordering Land Subject to Flooding

There will be approximately 3,725 sf of temporary impact to BLSF as part of this project. The performance standards associated with BLSF are addressed below.

- a. Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, ...

There will be no regrading in BLSF as part of this project, therefore there will be no change in flood storage. It is for this reason that no compensatory storage is provided.

- b. Work within Bordering Land Subject to Flooding, including that work required to provide the above-specified compensatory storage, shall not restrict flows so as to cause an increase in flood stage or velocity.

There will be no restriction of flows or increase in flood stage or velocity as part of this project.

- c. Work in those portions of bordering land subject to flooding found to be significant to the protection of wildlife habitat shall not impair its capacity to provide important wildlife habitat functions. Except for work which would adversely affect vernal pool habitat, a project or projects on a single lot, for which Notice(s) of Intent is filed on or after November 1, 1987, that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area found to be significant to the protection of wildlife habitat, shall not be deemed to impair its capacity to provide important wildlife habitat functions. Additional alterations beyond the above threshold, or altering vernal pool habitat, may be permitted if they will have no adverse effects on wildlife habitat, as determined by procedures contained in 310 CMR 10.60.

This project is occurring in already altered area that consists mostly of impervious surface (pavement, etc). As such, there is no existing wildlife habitat within the BLSF that would be altered.

- d. Protection of Rare Wildlife Species. Notwithstanding the provisions of 310 CMR 10.57(4)(a) or (b), no project may be permitted which will have any adverse effect on specified wildlife habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.59.

As stated above, the work in the BLSF is already altered area consisting of mostly impervious surface. There are also no mapped endangered species at the site. It is for these reasons that no impact to Rare Wildlife Species or their habitat is anticipated.

## Appendix B

## **Alternatives Analysis**

### ***Basis for Alternatives Analysis***

The following is an analysis of alternatives developed for a new Public Works (DPW) Facility to address deficiencies at the existing site, located at 51 Grove Street. The primary objective of the project is to provide a properly sized, safe, efficient, and code compliant facility for staff while also improving current stormwater management systems on site.

### ***Alternative Analysis***

Weston & Sampson has been working with the Town since 2017 to identify potential options for a new DPW facility. The first step in identifying potential options was to complete a programming analysis determining the minimum building and site components needed to support the operations. Concepts were developed to evaluate the ability of the site to safely and efficiently support operations.

### ***Site Alternatives***

Utilizing the programming analysis for the operations, multiple site layout alternatives were developed. One of the goals of the project was to develop a facility that could house a majority of the DPW vehicles and equipment indoors reducing the need to store the equipment outdoors as is currently done. This approach will not only improve safety and efficiency at the DPW, it will also protect the environment by placing vehicles and equipment indoors where any drips or runoff from the vehicles and equipment will be collected and discharged to the sanitary sewer system in lieu of the stormwater system. The option to do nothing was not deemed viable from an operational perspective as well as a stormwater perspective. The current facility conditions pose a health and safety risk to staff and contribute to operational inefficiencies at the site due to the age and condition of the facilities (some approaching 100 years old). Furthermore, a do-nothing option would not allow the Town to address the old / outdated stormwater system which discharges untreated / minimally treated stormwater to Mill Brook.

A total of five alternatives were further considered. In each of the options, the difference in the amount of impervious area within the wetland buffer zone and the riverfront area differed only slightly, and each of the options also considers the same stormwater improvements. Due to historic contamination and current MassDEP regulations related to the closure status of the site, the existing impervious areas cannot be eliminated and improved within the riverfront area since these impervious surfaces represent a MassDEP approved direct contact barrier. A summary of the alternatives and each of their potential stormwater quality impact considerations is as follows:

- Option 1 - This alternative consisted of a 3-story administrative building. Under this layout, the culvert opening in the middle of the site would be closed off, paved over, and the new fuel island and salt shed would be constructed within its wetland buffer zone and river front area.
- Option 2 - This alternative consisted of a central campus style concept. Under this alternative, the culvert opening in the middle of the site would be closed off and

paved over for additional parking. Additionally, the fuel island and the salt shed loading ramp would be constructed within the wetland buffer zone.

- Option 3 – This is another campus style layout, similar to Option 2. Under this layout, the culvert opening in the middle of the site would be closed off and paved over to accommodate bulk material storage above the brook.
- Option 4 – This option was used to develop the current site layout. This option consolidates the operations to the upper portion of the site. This site moves the salt shed and the fuel island to be away from the wetland buffer zone and the riverfront area. This option was further refined to the current layout, included with the application, to minimize the impact of the bulk material storage.
- Option 5 – This option is a variation of Option 4; however, a portion of the salt shed is located within the wetland buffer zone. This layout also has an expanded pavement area located outside of the wetland buffer zone.

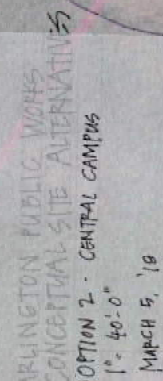
## ***Conclusion***

Several operational and regulatory impacts were considered when analyzing these options. The options listed above which involved paving over the opening to the culvert were deemed not viable from a regulatory perspective since this opening is part of the riverfront area. Furthermore, any change to the size or shape of the culvert openings is not viable due to alternations to the stream hydraulics which could create upstream impacts based on previous studies of the stream corridor. Each of the five options include the use of the adjacent town owned field area. Initial analyses of the DPW site determined that the facility could not be upgraded to meet current codes and safety standards without expanding into this field area. It should be noted that the field area is outside of the 200' riverfront area and although it has a pervious surface, a majority of the field has an existing impervious membrane layer constructed below the surface of the field providing a cap to underlying historic contamination. The stormwater system being provided for the site, including the field area, has been designed to meet current stormwater regulations and will provided for properly treated stormwater accordingly.

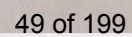
Based on the Alternatives Analysis, Weston & Sampson is recommending that Alternative 4 (with the minor modifications as shown in the NOI application) be the option that the Town of Arlington pursues to provide a properly sized, safe, efficient, and environmentally conscientious facility for the Department of Public Works and associated Town Departments. This option reduces the threat of greater impacts resulting from the fueling and salt operations. In addition, the existing pervious areas around the culvert openings are being improved to the maximum extent practicable by removing invasive species and historic surface sedimentation and improving the area with new native plantings and stormwater system to reduce untreated runoff from entering the riverfront area.



















## Appendix C



westonandsampson.com

100 Foxborough Boulevard, Suite 250  
Foxborough, MA 02035  
tel: 508.698.3034

# STORMWATER REPORT

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October 2020

TOWN OF  
**Arlington**  
MASSACHUSETTS

Department of Public Works  
51 Grove Street

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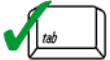
OPERATIONS AND MAINTENANCE PL



# Checklist for Stormwater Report

## A. Introduction

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.





# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



*Laurence F. Keegan* 10.22.20  
Signature and Date

### Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☐ Redevelopment
- ☒ Mix of New Development and Redevelopment



# Checklist for Stormwater Report

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## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☒ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☒ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): \_\_\_\_\_

### Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

- ☐ Soil Analysis provided.
- ☐ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - ☐ Static
  - ☐ Simple Dynamic
  - ☐ Dynamic Field<sup>1</sup>
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
  - ☒ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
  - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

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<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.





# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - ☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - ☐ is within the Zone II or Interim Wellhead Protection Area
    - ☐ is near or to other critical areas
    - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - ☒ involves runoff from land uses with higher potential pollutant loads.
  - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - ☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- ☒ The BMP is sized (and calculations provided) based on:
  - ☒ The ½" or 1" Water Quality Volume or
  - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☒ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☒ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☒ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☒ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☒ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
  - ☐ Limited Project
  - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - ☐ Bike Path and/or Foot Path
  - ☐ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- ☒ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☐ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- ☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - ☒ Name of the stormwater management system owners;
  - ☒ Party responsible for operation and maintenance;
  - ☒ Schedule for implementation of routine and non-routine maintenance tasks;
  - ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
  - ☐ Description and delineation of public safety features;
  - ☒ Estimated operation and maintenance budget; and
  - ☒ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- ☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☒ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

**Applicant/Project Name:** Town of Arlington – Department of Public Works Town Yard Facility

**Project Address:** 51 Grove Street, Arlington, MA

**Application Prepared by:**

Firm: Weston & Sampson, Inc.  
Registered PE: Larry F. Keegan, PE

Below is an explanation of MassDEP Stormwater Standards 1-10 as they apply to the Town of Arlington Public Works Facility project:

### GENERAL

The Town of Arlington Department of Public Works (DPW) proposes renovation and expansion to the existing DPW facility located at 51 Grove Street, Arlington, Massachusetts. The proposed site includes the current 4.4-acre parcel used by the DPW situated in the north and central portion of project site, and an adjacent 1.4 acre town owned lot currently occupied by the Arlington High School soccer field situated in the south portion of the project site, resulting in a total project area of 5.8 acres. The site is bordered by Grove Street to the east, the Minuteman Commuter Bikeway to the north, Arlington High School (AHS) Athletic Fields to the east and southeast, and residential buildings to the southwest. A locus map of the site, as well as other site mapping, is included in Appendix A.

The existing DPW facility includes seven, one to two-story buildings that range in footprint area from approximately 1,300 to 20,000 square feet (SF), a fuel island, several concrete pads, and several concrete walls/material storage bins up to about 5 feet (ft.) tall. The ground surface at the site is mostly comprised of bituminous concrete pavement. The soccer field is grass surfaced with minimal trees and bushes along the south and west sides.

Two 15 ft wide Massachusetts Water Resource Authority (MWRA) sewer easements cross the approximate middle of the site in a west to east directions. The easements include 42-inch diameter reinforced concrete (RCP) pipes with invert elevations approximately 12 to 18 feet below existing surface grades. Mill Brook runs parallel to the MWRA sewer easements and is buried below the site and one of the existing DPW buildings. While the majority of the Mill Brook is underground, it opens up to the surface at three distinct locations throughout the site: at the upstream point, adjacent to Grove Street, midpoint of the site, and downstream point, adjacent to the Arlington High School property.

Other subsurface utilities at the site include water, gas, electric, stormwater drainage, and sewer. Ground surface elevations at the site generally slope down from the south at El. 69 to the north at El. 54 ft, creating a significant grade differentiation. The majority of the existing DPW structures are located at the lower portion of the site with average ground surface elevation of 55 ft. The upper portion of the site has an average ground surface elevation of 65 ft and contains accessory DPW storage structures, fueling facility, and parking areas.

The site is environmentally contaminated from past uses. The existing DPW facility is covered under a Class C-1 Partial Response Action Outcome (RAO). The existing soccer field is covered under MassDEP Release Tracking Notification (RTN) 3-4241. Environmental direct contact barriers include the bituminous pavement surface at the DPW facility and 2 ft. of “clean” granular fill at the north end of the soccer field. A series of subsurface 12-inch perforated flat pipes are located within the direct contact barrier below the soccer field. An engineered barrier is located at the south end of the soccer field and includes a 12-inch thick vegetative support layer and a 12-inch thick drainage layer above a geosynthetic containment layer. The Engineered Barrier and the Direct Contact Barriers will need to be maintained to prevent exposure to underlying contaminated soil through direct contact, ingestion, or inhalation.

The proposed project includes construction of an approximately 43,000 SF 2-story Department of Public Works (DPW) building (Building E) at the site south end of the existing DPW facility, an approximately 6,000 SF salt shed east of the new DPW building, a fuel island south of the new DPW building, and an approximately 260 ft. long retaining wall with retained earth heights up to 12 ft. along the southeast side of the existing DPW facility. Additional proposed site improvements include new paved access road and parking areas in the existing DPW facility and soccer field areas, concrete equipment/container pads, material storage bins, and new subsurface utilities including an underground stormwater detention structure south of the new fuel island. Demolition of existing structures in the south side of the existing DPW facility will be required for the proposed construction.

The DPW building will include equipment repair, employee, shop, wash bay, and administration/engineering areas. Concurrently with construction of the new DPW building, the existing buildings on the site (Building A, B, C, and D) will be renovated to support the Town's Inspection Services Department, Facilities Department, and Information Technology Department). Minor site improvements will take place on the lower portion of Site, including minor re-grading to improve drainage, and repaving of the existing vehicular circulation areas.

Debris from the site preparation will be transported in covered container vehicles for off-site disposal or recycling. Erosion control measures, including the use of erosion control devices, will be implemented to mitigate sediment migration outside the limits of work. Catch basin protection will be implemented for all catch basins affected by the work area. Inlet sediment control will be placed in the catch basin to minimize sediment loading into the catch basin.

Environmental protection measures will also include dust control to ensure that generation of on-site dust during work activities will be minimized. Dust control activities will not add to any additional stormwater runoff at the site, as dust control will not be used during storm events. Wet suppression shall be used to provide temporary control of dust. At a minimum, wet suppression shall be applied to demolition debris, excavated material, aggregate piles, and exposed soils and dirt. Dust suppression wetting agents shall be water soluble, non-toxic, non-reactive, non-volatile, and non-foaming and will not result in ponding of water.

As detailed herein, this Stormwater Management Report:

- Demonstrates compliance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards;
- Demonstrates compliance with the Town of Arlington Conservation Commission;

- Details construction-phase erosion and sedimentation controls, inspection requirements and maintenance requirements to protect downstream receiving waters; and,
- Presents a detailed long-term operation and maintenance plan for the stormwater management system and the site.

*Stormwater Management:* The approach to stormwater management for the project consists of maintaining existing drainage patterns and outfalls, installing structural BMP's to provide water quality treatment, and improving environmentally sensitive areas of the site within environmental and physical constraints of the site. To achieve this, the runoff from the driveways, parking, and circulation areas will be conveyed to deep sump catch basins and hydrodynamic separators prior to discharge. The runoff from the parking lot proposed within existing soccer field will be stored in an underground detention area and discharged at a reduced rate to ensure that the post-development flow rate will not exceed the existing rate. The areas directly adjacent to the Mill Brook surface openings will be improved by removing sections of pavement adjacent to the brook and installing of pervious biofiltration pockets with native plantings, which will provide filtration to runoff entering the culvert through surface flow.

*Stormwater Design:* Weston & Sampson utilized HydroCAD computer software to model the stormwater runoff for 2-year, 10-year, 25-year, 50-year and 100-year 24-hour storm events. The rainfall amounts used for the analysis was based on the extreme precipitation tables obtained from the Northeast Regional Climate Center at Cornell. The rainfall depths were 3.23 inches, 4.88 inches, 6.19 inches, 7.42 in, and 8.89 inches, respectively.

Soil information was obtained from the Natural Resources Conservation Service (NRCS) Middlesex County Web Soil Survey. The soil survey indicated Udorthents, and Merrimac-Urban Land complex in the vicinity of the proposed site. Udorthents does not have a Hydrologic Soil Group rating assigned, while the Merrimac – Urban Land complex has Hydrologic Soil Group rating A. The soil map and descriptions are included in Appendix A. To be conservative, a Hydrologic Soil Group A was assumed when determining curve numbers associated with individual drainage areas in the HydroCAD model.

### Existing Drainage Conditions

The existing conditions in the project area of the site consists of approximately 232,106 square feet or 88.8% of impervious surface, comprised of the buildings, storage structures, and circulation areas including driveways and parking areas. The pervious areas are limited to the soccer fields in the southern portion of the site and totals 29,333 square feet, or 11.2. Topography on the site generally slopes from south to north, with a step transition portion approximately mid site, between the upper portion of DPW yard and lower portion of DPW yard.

Based on the existing drainage pattern, three existing watershed areas were delineated, shown graphically in Appendix B.

Drainage Area 1 includes much of the existing DPW yard. The stormwater from this area is collected via existing catch basins and is discharge directly to the underground portion of Mill Brook via several discharge points.

Drainage Area 2 includes the area adjacent to Grove Street. The runoff from this area discharges overland to the municipal drainage system in Grove street, which in turn discharges into the Mill Brook, at the upstream section of the stream, as it enters the site

Drainage Area 3 includes southern portion of the project site including the soccer fields, bituminous driveway connecting to the AHS property and areas surround existing fuel island. The stormwater runoff from this area is collected via a network of underground piping and underdrains beneath the soccer field. The runoff further discharges in the easterly direction into the AHS drainage network.

### **Proposed Drainage Conditions**

In the proposed condition the amount of impervious surface on site will be approximately 261,439 square feet (90.8%) and consequently the pervious area will decrease to 24,169 square feet ( 9.2%) in large part due to the converting the soccer field to a parking lot. To mitigate the runoff from the additional impervious surface in the proposed condition, an underground detention system is proposed. The detention system will ensure that proposed runoff rates will not exceed the existing rate of runoff. The stormwater runoff from the paved areas will be directed into deep sump catch basins and conveyed to stormwater treatment units to provide water quality treatment prior to discharge.

Four watershed (drainage) areas were delineated in the proposed condition and are shown graphically in Appendix B.

Similarly to existing condition, area DA-1 contains majority of the existing DPW site and a large portion of the proposed new Building E roof as well as circulation areas north and east of the Building E. Stormwater system in the lower portion of the site will remain unchanged and will continue discharging into Mill Brook via existing drainage network. The stormwater from the upper portion of the site will be collected via deep sump catch basins and will be treated by a proposed hydrodynamic separator prior to discharge into Mill Brook via existing outfall.

Area DA-2 includes the areas along Grove Street frontage. Similarly to existing condition, the runoff from this area will overflow along the driveway to Grove Street, where it will discharge into Mill Brook via municipal drainage system.

Area DA-3a includes larger portion of the proposed parking lot that will be constructed over the soccer field as well as a small portion of the roof from the new DPW building and driveway south of Building E. the runoff from this area will be collected via deep sump catch basins and routed to hydrodynamic separators and further conveyed to the underground detention system. The runoff will be discharge from the detention system via proposed outlet control structure into the existing 12" HDPE pipe that connects with the AHS drainage network

Area DA-3b includes small area of proposed parking lot. The runoff from this area will flow overland to the edge of the parking lot where it will enter a FocalPoint Biofiltration System for treatment. A Focal Point Biofiltration System is a modular biofiltration system that utilizes high performance biofiltration media to achieve pollutant removal consistent with a typical rain garden and achieves 80% TSS removal, and 60% phosphorus removal. The treated stormwater and overflow from larger storms will be conveyed downstream and discharged into the AHS drainage network.



**Best Management Practices (BMPs) and Low Impact Development (LID) Measures**

Low Impact Development (LID) Measures will be incorporated, where possible, into this project. Existing paved areas will be removed and replaced with loam and seed and plantings where space allows. Unlike the existing condition, the proposed redevelopment provides sediment and oil removal, peak rate attenuation, and groundwater recharge. The BMPs used in this project are described below.

**Deep Sump Hooded Catch Basins**

The catch basins are to be constructed with a sump (minimum 4-feet) and oil/debris traps to prevent the discharge of sediments and floating contaminants.

**Hydrodynamic Separators**

The hydrodynamic separators dissipate velocity and allow oil and debris to rise and sediment to settle out.

**Rain Garden/Bio-filtration Landscape Areas**

Small scale rain garden areas will be incorporated into the design where feasible. These areas will aid in removal of pollutants as water filters through the filter media and provide habitat to native plantings. .

**STANDARD 1 – NO NEW UNTREATED DISCHARGES**

The proposed project will create no new untreated discharges. The proposed project was designed to mimic existing conditions as much as possible and improve the condition to the maximum extent practicable. As part of the proposed project, surface runoff from new impervious areas will be collected in deep sump catch basins and conveyed to hydrodynamic separators prior to discharge off the site.

**STANDARD 2 – PEAK RATE ATTENUATION**

Post construction peak runoff rates at the project site for the 2-, 10-, 25-, 50- and 100-year storms will not increase. Supporting documentation is included with this report. A summary table is provided in Appendix B to illustrate that post-construction peak discharge rates will nearly mimic pre-construction rates. To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures will include compost filter tubes, catch basin sediment controls, and a stabilized construction entrance, as depicted on the plans.

**STANDARD 3 – RECHARGE**

The project site is identified by MassDEP as a contaminated site, where the contamination has been capped in place. This site has an Activity and Use Limitation (AUL) that precludes introducing runoff to the groundwater. Therefore, the recharge standard is not met.

## STANDARD 4 – WATER QUALITY

For redevelopment portion of the project, Standard 4 is required to be met only to the maximum extent practicable. Stormwater from all new impervious areas within the project limits will be directed into at least one drainage structure for treatment. The treatment structures utilized on site include deep sump catch basins and hydrodynamic separators. This treatment train provides 47% TSS removal from the stormwater at the upper site. prior to discharge.

Since this project increases the impervious area by approximately 5,000 square feet, a portion of the project site was considered a new development. To achieve compliance with standard 4, the runoff from a portion of proposed parking lot at the southern area of site will be diverted to a Focal Point BioFiltration System, which relies on high performance biofiltration media to filter out pollutants from the rainwater. Focal Point Filtration System achieves 80% TSS removal and 60% total phosphorus removal. Additional information about Focal Point Biofiltration system can be found in Appendix C

Various alternatives were considered to attain higher rate of TSS removal for the redevelopment portion of the site; however, they were not feasible due to the many constraints of the site. Some of the BMP considered for the project included proprietary media filters, tree box filters, and bioretention areas. Due to the contamination of site, any BMP's relying on infiltration were not possible. Similarly, BMP's requiring significant surface area were impractical due the space limitations on site, further limited by utility easements and underground environmental containment measures. However to improve the existing condition, the project will convert impervious areas directly adjacent to the open sections of Mill Brook into a landscaped islands with native plantings and biofiltration soil mix providing filtration of the surface water entering stream via the openings.

## STANDARD 5 – LAND USES WITH HIGHER POTENTIAL POLLUTANT LOADS (LUHPPLs)

Because the use of the property will involve maintenance of vehicles, storage of oils and anti-freeze, pavement treatment, and snow storage, the land use has the potential for higher pollutant loads. A Long-Term Pollution Prevention Plan (included in Appendix D) identifies proper procedures of practices for source control and pollution prevention due to the site specific LUHPPL. As this site is a re-development, the project need only to meet the pre-treatment requirement of Standard 5. The 44% TSS Removal pre-treatment will be achieved prior to discharging any runoff from the proposed paved areas. This requirement will be achieved using a treatment train of deep dump catch basins and hydrodynamic separators, combined with incorporating non-structural BMP's such as street sweeping TSS removal worksheets documenting compliance are included in Appendix C of this report.

## STANDARD 6 – CRITICAL AREAS

Not applicable. The project site is not located within a Critical Area.

## STANDARD 7 – REDEVELOPMENTS AND OTHER PROJECTS SUBJECT TO THE STANDARDS ONLY TO THE MAXIMUM EXTENT PRACTICABLE

Most of the project is considered a redevelopment. However, since the overall impervious area on site increase by 5,164 square feet, due to construction of the proposed parking lot in the area of existing soccer fields, a small portion the project is considered a new development. For

redevelopment portion of the site, the project needs only to meet Standards 2 and 3 to the maximum extent practicable and the pre-treatment requirements of Standards 4, 5, and 6 meet as noted in the Stormwater Handbook. Approximately 5,000 sq feet of the proposed parking lot is considered new development, and therefore will comply with all the applicable regulations, however due to the active ALU on site, it will not meet recharge standard (standard 3). This project has been designed to comply with the Stormwater Management Standards as noted above and below.

However, this project provides significant improvement to the existing conditions. Addition of various BMPs will result in a reduction in annual stormwater pollutant loads from the site. Incorporation of an underground infiltration reduces peak runoff rates from the site. Additionally, removing sections of the pavement directly adjacent to the open stream sections and replacing the pavement with bio-filtrating landscaped areas will provide an opportunity of filtering pollutants from any surface waters entering the stream via overland flow.

#### **STANDARD 8 – CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENT CONTROL**

A detailed Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan is included in Appendix D of this report. To ensure that the work incorporates the performance standards recommended in the DEP's Stormwater Management Policy, necessary erosion and sedimentation control measures will be utilized during construction. These measures include compost filter tubes, catch basin protection, and a stabilized construction entrance, as depicted on the site plans. In addition, the contractor will be required to produce the SWPPP prior to any land disturbance.

#### **STANDARD 9 – OPERATION AND MAINTENANCE PLAN**

An Operations and Maintenance Plan is provided in Appendix D of this report.

#### **STANDARD 10 – PROHIBITION OF ILLICIT DISCHARGES**

Illicit discharges will be prevented on the site through the use of spill/discharge prevention measures, along with good housekeeping and BMPs, and in accordance with the Long-Term Pollution Prevention Plan and O&M plan. An Illicit Discharge Compliance Statement has been developed for this site and is included in Appendix D.

## REGISTERED PROFESSIONAL ENGINEER'S CERTIFICATION

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-Term Pollution Prevention Plan, Construction Period Erosion and Sedimentation Control Plan, Post-Construction Operation and Maintenance Plan, Illicit Discharge Compliance Statement, and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

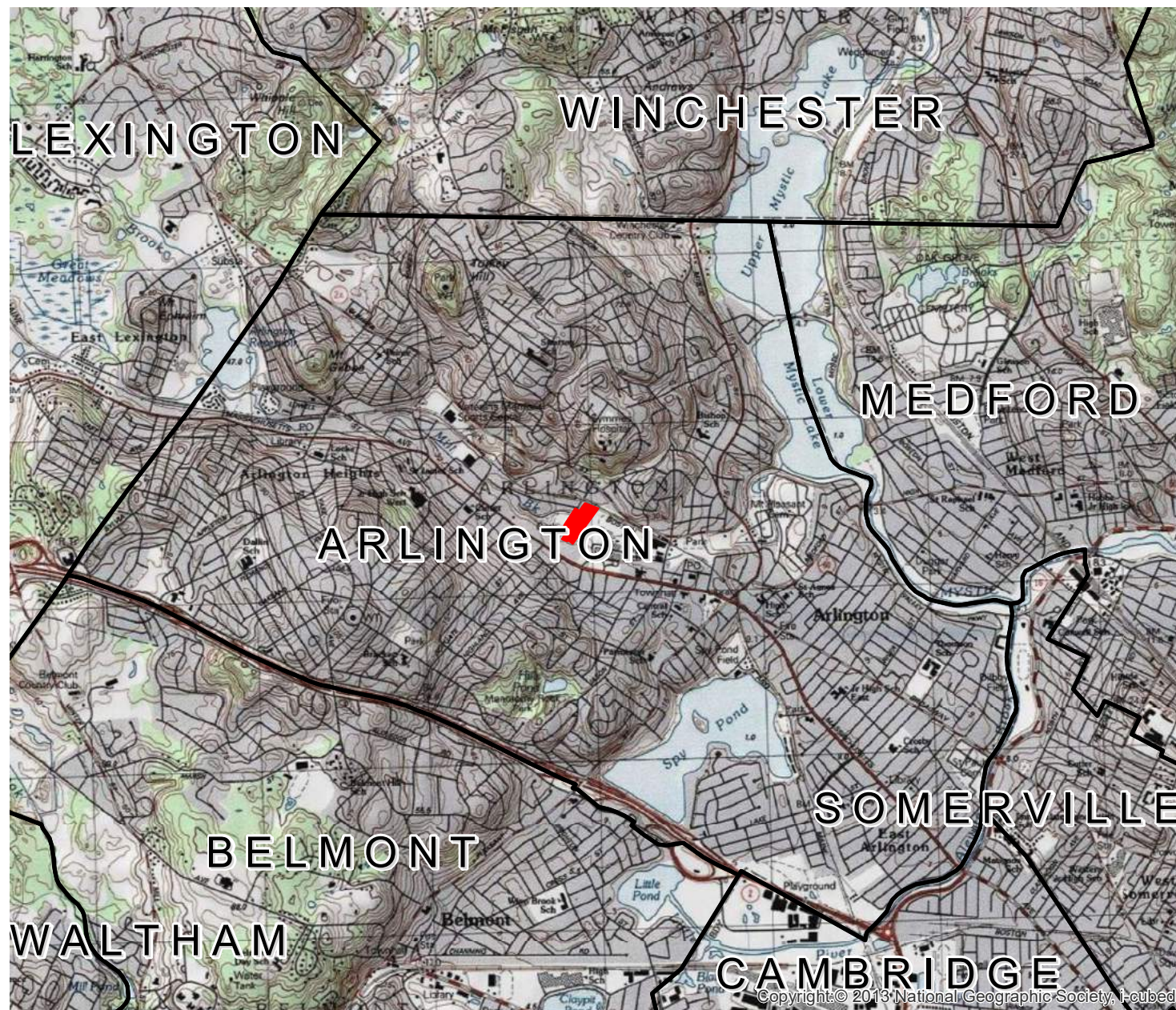
## Registered Professional Engineer Block and Signature



*Laurence F. Keegan, Jr.* 10.22.20  
Signature and Date

# APPENDIX A





#### Legend

■ Work Area

#### FIGURE 1

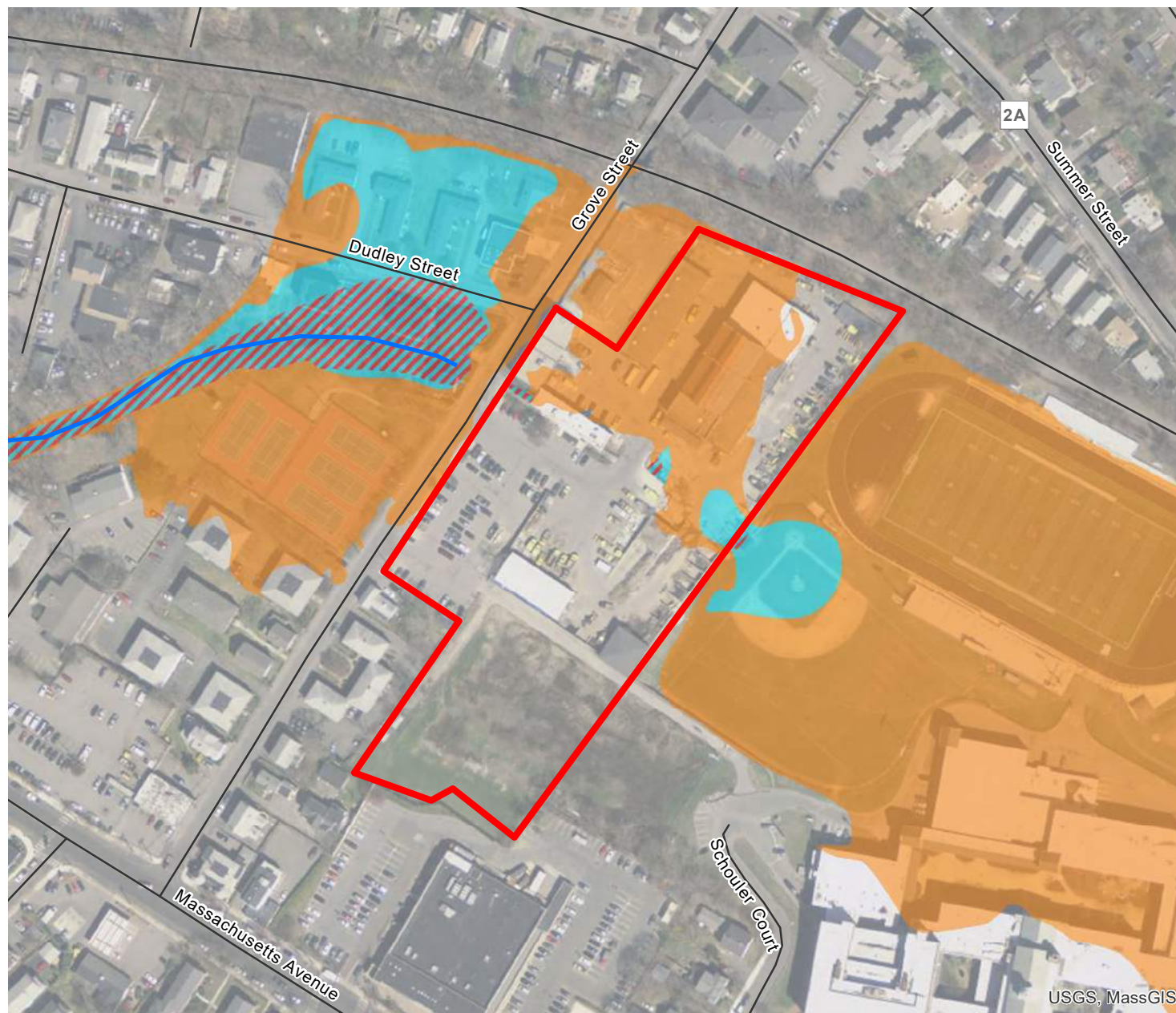
DPW Facility  
Arlington, MA

Locus Map

Weston & Sampson

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs





#### Legend

- Work Area
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- ✱ NHESP Certified Vernal Pools
- ✱ NHESP Potential Vernal Pools
- FEMA National Flood Hazard Layer**
- Flood Zone Designations**
- A: 1% Annual Chance of Flooding, no BFE
- AE: 1% Annual Chance of Flooding, with BFE
- AE: Regulatory Floodway
- AH: 1% Annual Chance of 1-3ft Ponding, with BFE
- AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding, with Depth
- VE: High Risk Coastal Area
- D: Possible But Undetermined Hazard
- X: 0.2% Annual Chance of Flooding
- X: Reduced Flood Risk due to Levee
- Area Not Included
- Area with no DFIRM - Paper FIRMs in Effect

## FIGURE 2

DPW Facility  
Arlington, MA

Environmental  
Resource Map

Weston & Sampson

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs





- Legend**
- Work Area
  - State Registry of Historic Places
  - All Underground Storage Tanks
  - Tier Classified Sites**
  - ◆ Tier 1A
  - ◆ Tier 1B
  - ◆ Tier 1C
  - ◆ Tier 1D
  - ◆ Tier II
  - PUBLIC WATER SUPPLIES**
  - ▲ Community Ground Water
  - ▲ Community Surface Water
  - ▲ Surface Distribution Site
  - ▲ Non-Transient Non-Community
  - ▲ Transient Non-Community
  - ▲ Proposed Well
  - CH21E AUL Sites**
  - CH21E AUL Sites
  - DEP BWP Major Facilities**
  - Large Quantity Generators (LQG)**
  - EPA/RCRA-regulated Hazard. Waste
  - MA-regulated Hazard. Waste
  - MA and EPA/RCRA-regulated Hazard. Waste
  - Zone I
  - Solid Waste Facilities - All Landfills
  - IWPA's
  - DEP Approved Zone IIs
  - Zone A
  - ZONE B
  - ZONE C
  - <all other values>
  - OPENSOURCE**
  - Conservation Organization
  - County
  - Federal
  - Land Trust
  - Municipal
  - Other
  - Private
  - Private Non-Profit
  - Private-Private Dispute
  - Public Non-Profit
  - State
  - State-Municipal Dispute
  - State-Non-Profit Dispute
  - State-Private Dispute
  - State-State Dispute
  - Unknown

**FIGURE 3**  
DPW Facility  
Arlington, MA

Human Receptor Map

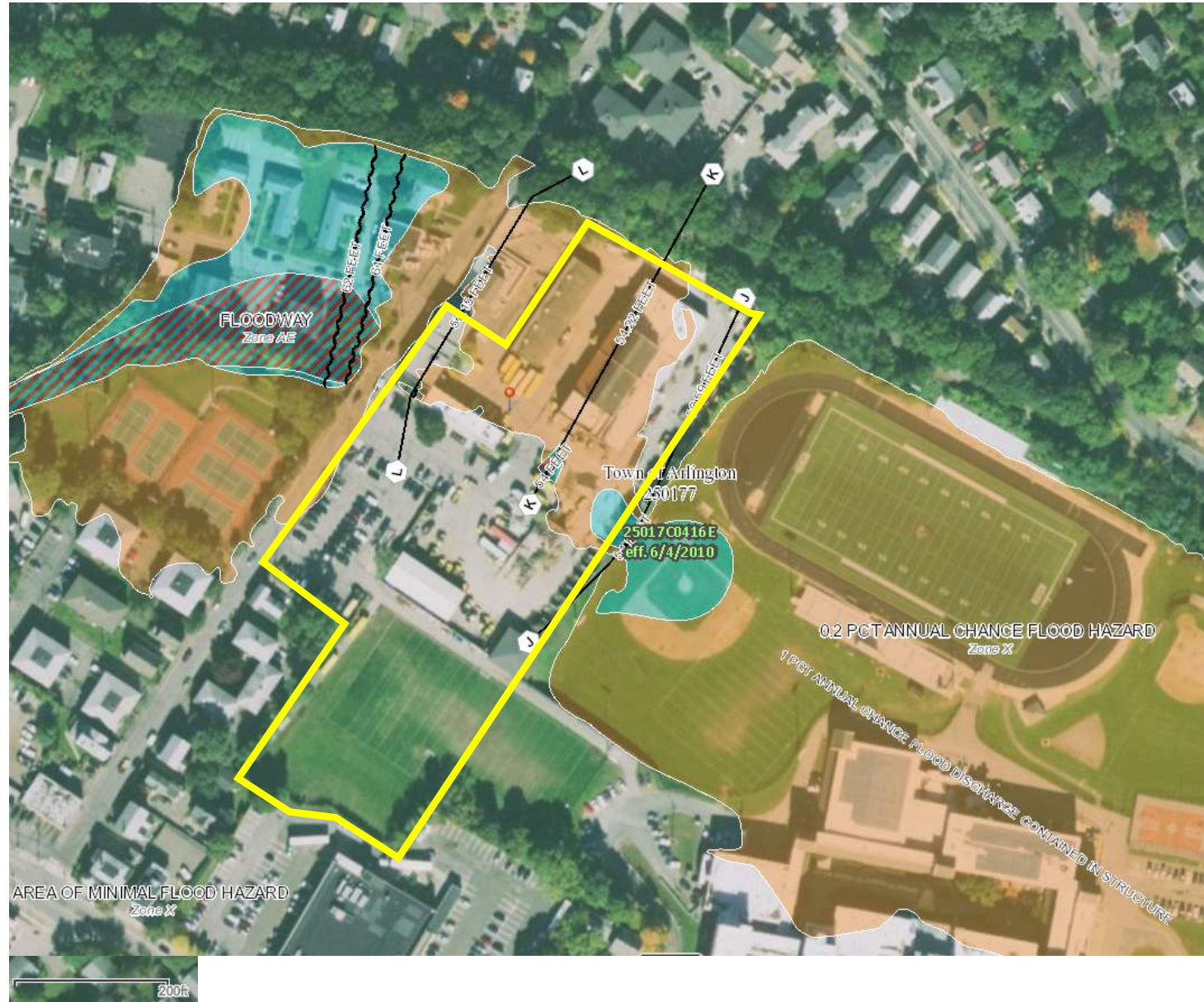


Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs



# National Flood Hazard Layer FIRMMette

71°10'6"W 42°25'26"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
MAP PANELS		20.2
		17.5
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

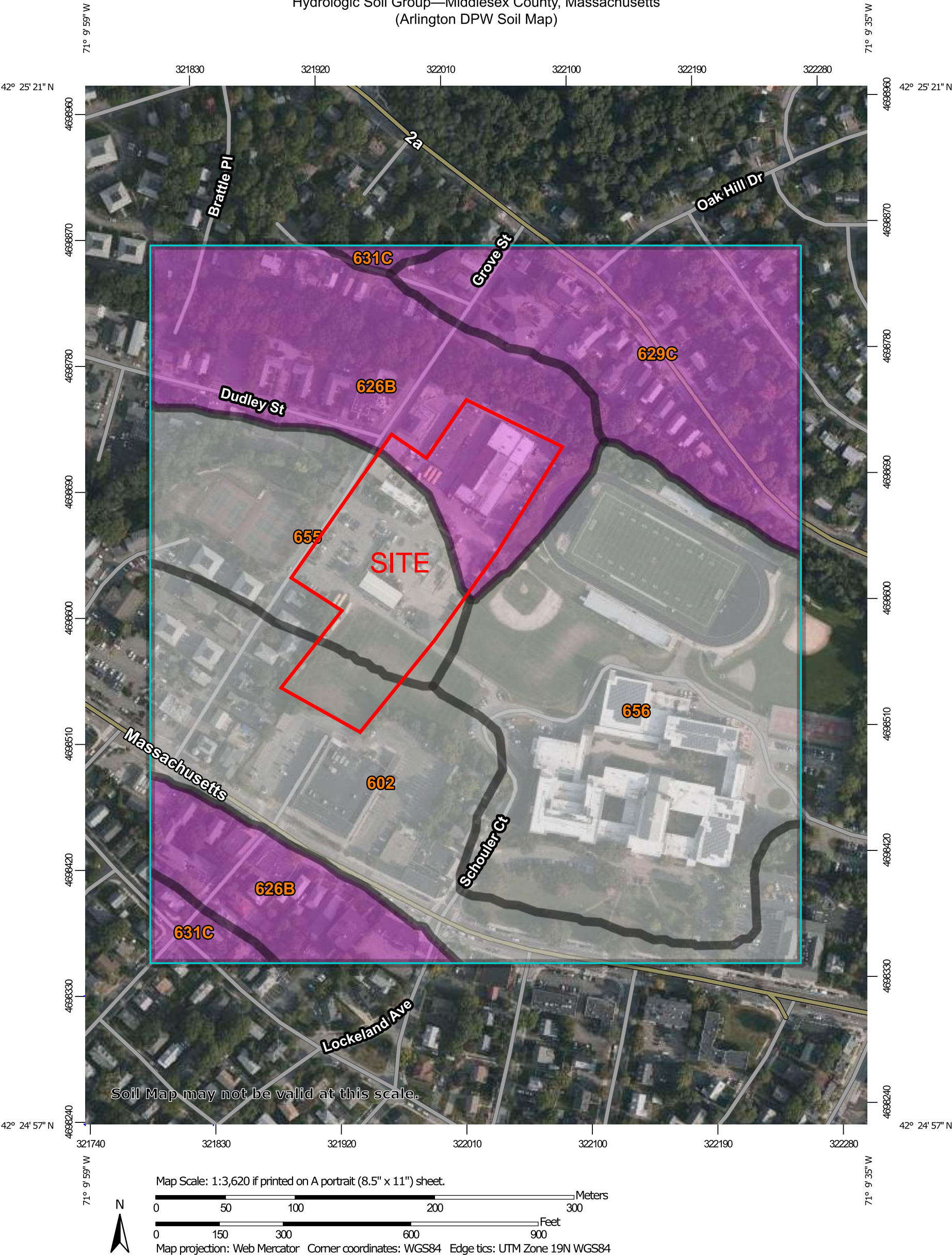
This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **10/21/2020 at 9:19 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Hydrologic Soil Group—Middlesex County, Massachusetts  
(Arlington DPW Soil Map)



Natural Resources  
Conservation Service


Web Soil Survey  
National Cooperative Soil Survey

5/7/2020  
Page 1 of 4







MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points

-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts  
Survey Area Data: Version 19, Sep 12, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 11, 2019—Oct 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
602	Urban land		11.6	19.5%
626B	Merrimac-Urban land complex, 0 to 8 percent slopes	A	13.8	23.3%
629C	Canton-Charlton-Urban land complex, 3 to 15 percent slopes	A	8.8	14.8%
631C	Charlton-Urban land-Hollis complex, 3 to 15 percent slopes, rocky	A	1.0	1.7%
655	Udorthents, wet substratum		7.4	12.4%
656	Udorthents-Urban land complex		16.8	28.3%
Totals for Area of Interest			59.3	100.0%

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

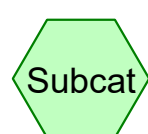
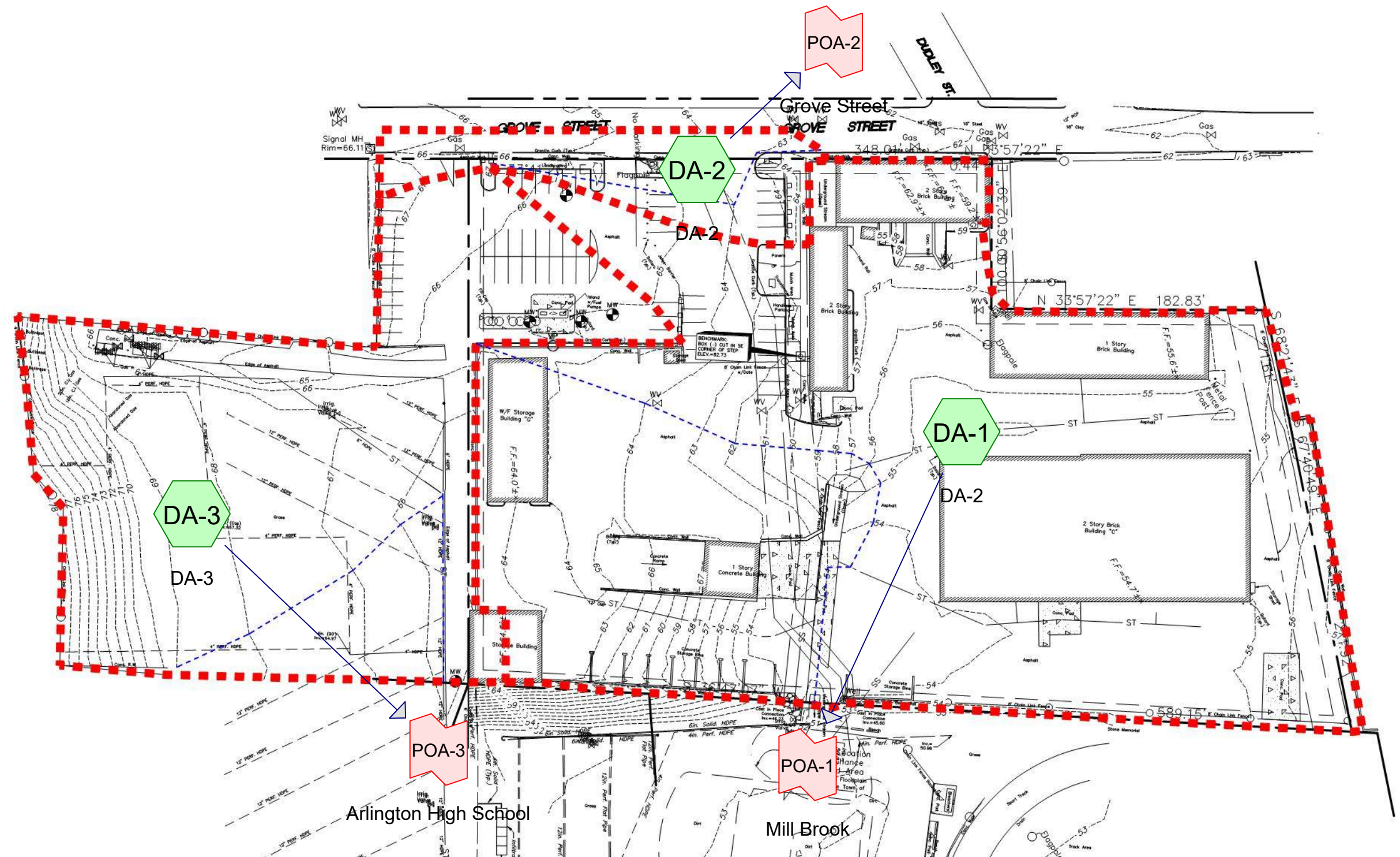
*Tie-break Rule:* Higher

# APPENDIX B

**ARLINGTON DPW FACILITY**  
**ARLINGTON, MA**

Pre-Development Conditions vs. Post-Development Conditions											
Pre-Development Flows						Post-Development Flows					
Output	2-year storm 3.23 in	10-year storm 4.88 in	25-year storm 6.19 in	50-year storm 7.42 in	100-year storm 8.89 in	Output	2-year storm 3.23 in	10-year storm 4.88 in	25-year storm 6.19 in	50-year storm 7.42 in	100-year storm 8.89 in
<u>Subcatchment/Reach</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Subcatchment/Reach</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>	<u>Inflow (cfs)</u>
POI 1 <i>Mill Brook</i>	11.44	17.55	22.37	26.88	32.26	POI 1 <i>Mill Brook</i>	10.96	17.14	22.00	26.54	31.95
POI 2 <i>Grove Street</i>	0.86	1.40	1.82	2.21	2.68	POI 2 <i>Grove Street</i>	0.8	1.34	1.77	2.16	2.63
POI 3 <i>Arlington High School</i>	2.44	4.84	6.83	8.73	11.01	POI 3 <i>Arlington High School</i>	1.76	2.64	3.37	4.92	6.01

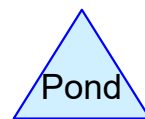




Subcat



Reach



Pond



Link

**Routing Diagram for Arlington-EX**  
 Prepared by Weston & Sampson, Printed 10/21/2020  
 HydroCAD® 10.10-3a s/n 02058 © 2020 HydroCAD Software Solutions LLC



**Arlington-EX**

Prepared by Weston & Sampson  
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**Rainfall Events Listing**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.23	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.88	2
3	25-Year	Type III 24-hr		Default	24.00	1	6.19	2
4	50-Year	Type III 24-hr		Default	24.00	1	7.42	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.89	2

**Arlington-EX**

Prepared by Weston & Sampson  
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**Area Listing (all nodes)**

Area (sq-ft)	CN	Description (subcatchment-numbers)
2,792	49	50-75% Grass cover, Fair, HSG A (DA-1)
26,541	39	>75% Grass cover, Good, HSG A (DA-2, DA-3)
232,106	98	Paved parking, HSG A (DA-1, DA-2, DA-3)
<b>261,439</b>	<b>91</b>	<b>TOTAL AREA</b>

**Soil Listing (all nodes)**

Area (sq-ft)	Soil Group	Subcatchment Numbers
261,439	HSG A	DA-1, DA-2, DA-3
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
<b>261,439</b>		<b>TOTAL AREA</b>

**Ground Covers (all nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
2,792	0	0	0	0	2,792	50-75% Grass cover, Fair
26,541	0	0	0	0	26,541	>75% Grass cover, Good
232,106	0	0	0	0	232,106	Paved parking
<b>261,439</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>261,439</b>	<b>TOTAL AREA</b>

**Arlington-EX**Prepared by Weston & Sampson  
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Existign Conditions

Printed 10/22/2020

Page 5

**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DA-3	0.00	0.00	125.0	0.0080	0.010	12.0	0.0	0.0

**Arlington-EX**Prepared by Weston & Sampson  
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Existign Conditions

Type III 24-hr 2-Year Rainfall=3.23"

Printed 10/22/2020

Page 6

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**SubcatchmentDA-1: DA-2**Runoff Area=165,210 sf 98.31% Impervious Runoff Depth>2.75"  
Tc=6.0 min CN=97 Runoff=11.44 cfs 37,803 cf**SubcatchmentDA-2: DA-2**Runoff Area=14,062 sf 89.87% Impervious Runoff Depth>2.24"  
Tc=6.0 min CN=92 Runoff=0.86 cfs 2,630 cf**SubcatchmentDA-3: DA-3**Runoff Area=82,167 sf 69.43% Impervious Runoff Depth>1.31"  
Flow Length=337' Tc=13.3 min CN=80 Runoff=2.44 cfs 8,990 cf**Link POA-1: Mill Brook**Inflow=11.44 cfs 37,803 cf  
Primary=11.44 cfs 37,803 cf**Link POA-2: Grove Street**Inflow=0.86 cfs 2,630 cf  
Primary=0.86 cfs 2,630 cf**Link POA-3: Arlington High School**Inflow=2.44 cfs 8,990 cf  
Primary=2.44 cfs 8,990 cf**Total Runoff Area = 261,439 sf Runoff Volume = 49,423 cf Average Runoff Depth = 2.27"**  
**11.22% Pervious = 29,333 sf 88.78% Impervious = 232,106 sf**

**Arlington-EX**

Prepared by Weston &amp; Sampson

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Page 7

Existign Conditions  
Type III 24-hr 2-Year Rainfall=3.23"  
Printed 10/22/2020**Summary for Subcatchment DA-1: DA-2**

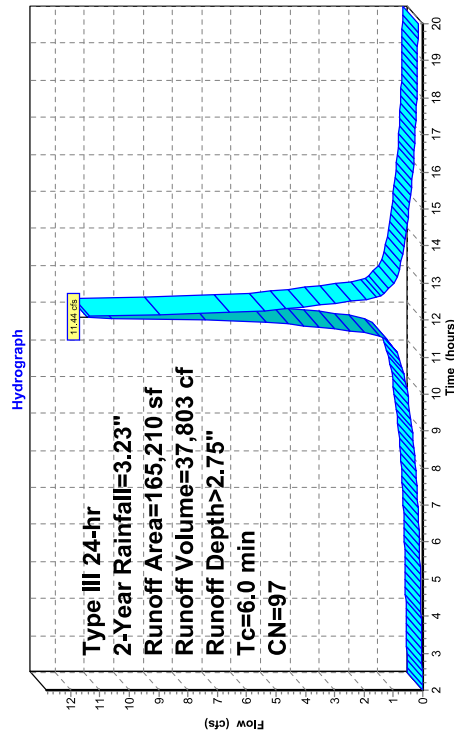
Runoff = 11.44 cfs @ 12.09 hrs, Volume= 37,803 cf, Depth&gt; 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
2,792	49	50-75% Grass cover, Fair, HSG A
162,418	98	Paved parking, HSG A
165,210	97	Weighted Average
2,792		1.69% Pervious Area
162,418		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-1: DA-2****Arlington-EX**

Prepared by Weston &amp; Sampson

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Existign Conditions  
Type III 24-hr 2-Year Rainfall=3.23"  
Printed 10/22/2020

Page 8

**Summary for Subcatchment DA-2: DA-2**

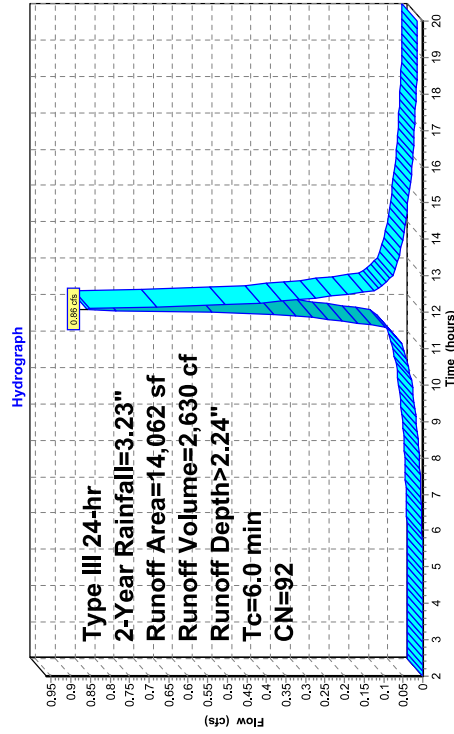
Runoff = 0.86 cfs @ 12.09 hrs, Volume= 2,630 cf, Depth&gt; 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
1,425	39	>75% Grass cover, Good, HSG A
12,637	98	Paved parking, HSG A
14,062	92	Weighted Average
1,425		10.13% Pervious Area
12,637		89.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

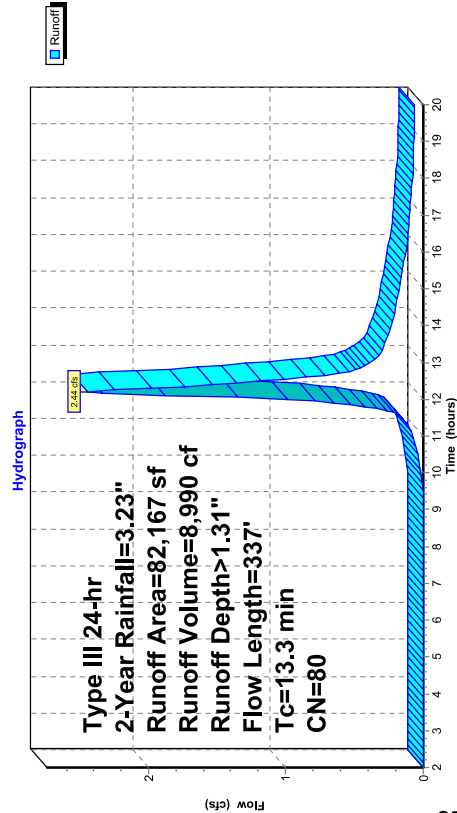
**Subcatchment DA-2: DA-2**

**Summary for Subcatchment DA-3: DA-3**

Runoff = 2.44 cfs @ 12.19 hrs, Volume= 8,990 cf, Depth> 1.31"  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description			
25,116	39	>75% Grass cover, Good, HSG A			
57,051	98	Paved parking, HSG A			
82,167	80	Weighted Average			
25,116		30.57% Pervious Area			
57,051		69.43% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0150	0.15		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.12"
1.8	112	0.0210	1.01		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0080	5.27	4.14	<b>Pipe Channel, PIPE FLOW</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior

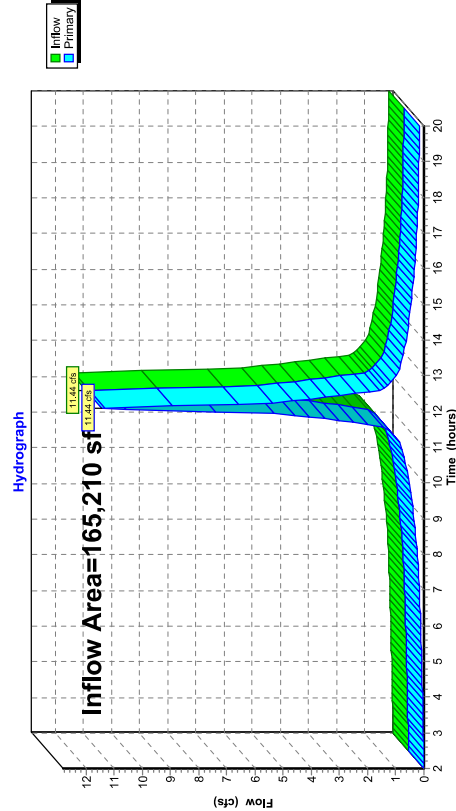
**Subcatchment DA-3: DA-3**



**Summary for Link POA-1: Mill Brook**

Inflow Area = 165,210 sf, 98.31% Impervious, Inflow Depth > 2.75" for 2-Year event  
 Inflow = 11.44 cfs @ 12.09 hrs, Volume= 37,803 cf  
 Primary = 11.44 cfs @ 12.09 hrs, Volume= 37,803 cf, Atten= 0%, Lag= 0.0 min  
 Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-1: Mill Brook**

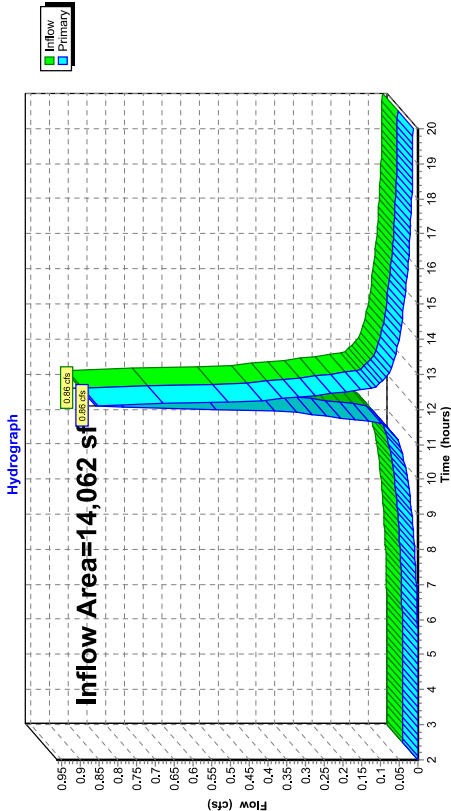


Summary for Link POA-2: Grove Street

Inflow Area = 14,062 sf, 89.87% Impervious, Inflow Depth > 2.24" for 2-Year event  
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 2,630 cf  
Primary = 0.86 cfs @ 12.09 hrs, Volume= 2,630 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-2: Grove Street

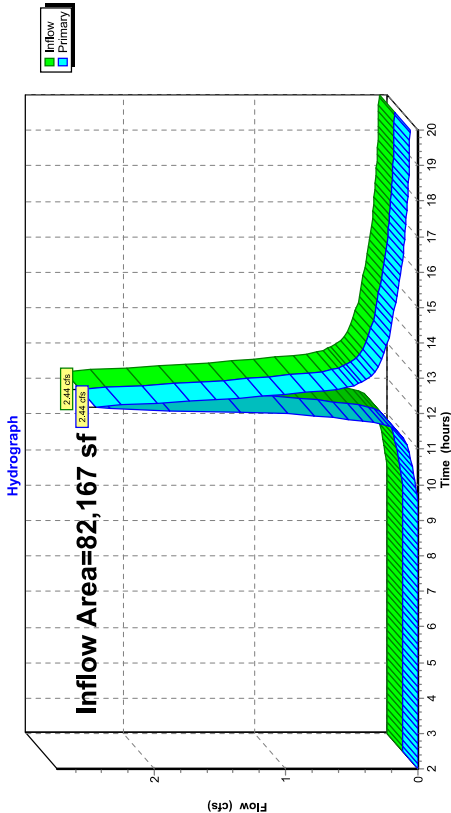


Summary for Link POA-3: Arlington High School

Inflow Area = 82,167 sf, 69.43% Impervious, Inflow Depth > 1.31" for 2-Year event  
Inflow = 2.44 cfs @ 12.19 hrs, Volume= 8,990 cf  
Primary = 2.44 cfs @ 12.19 hrs, Volume= 8,990 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School



Arlington-EX

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Existign Conditions  
Type III 24-hr 10-Year Rainfall=4.88"  
Printed 10/22/2020  
Page 13

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-2

Runoff Area=165,210 sf 98.31% Impervious Runoff Depth>4.31"  
Tc=6.0 min CN=97 Runoff=17.55 cfs 59,359 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,062 sf 89.87% Impervious Runoff Depth>3.76"  
Tc=6.0 min CN=92 Runoff=1.40 cfs 4,410 cf

SubcatchmentDA-3: DA-3

Runoff Area=82,167 sf 69.43% Impervious Runoff Depth>2.60"  
Flow Length=337' Tc=13.3 min CN=80 Runoff=4.84 cfs 17,784 cf

Link POA-1: Mill Brook

Inflow=17.55 cfs 59,359 cf  
Primary=17.55 cfs 59,359 cf

Link POA-2: Grove Street

Inflow=1.40 cfs 4,410 cf  
Primary=1.40 cfs 4,410 cf

Link POA-3: Arlington High School

Inflow=4.84 cfs 17,784 cf  
Primary=4.84 cfs 17,784 cf

Total Runoff Area = 261,439 sf Runoff Volume = 81,552 cf Average Runoff Depth = 3.74"  
11.22% Pervious = 29,333 sf 88.78% Impervious = 232,106 sf

Arlington-EX

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Existign Conditions  
Type III 24-hr 10-Year Rainfall=4.88"  
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Summary for Subcatchment DA-1: DA-2

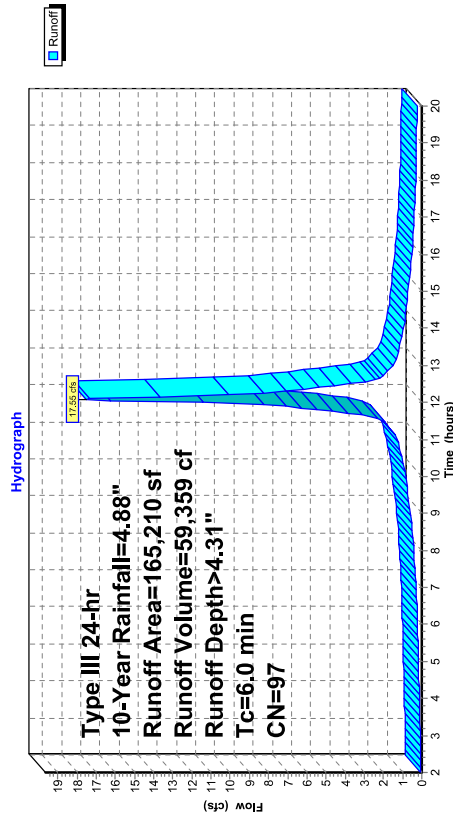
Runoff = 17.55 cfs @ 12.09 hrs, Volume= 59,359 cf, Depth> 4.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
2,792	49	50-75% Grass cover, Fair, HSG A
162,418	98	Paved parking, HSG A
165,210	97	Weighted Average
2,792		1.69% Pervious Area
162,418		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment DA-1: DA-2





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Type III 24-hr 10-Year Rainfall=4.88"  
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Summary for Subcatchment DA-2: DA-2

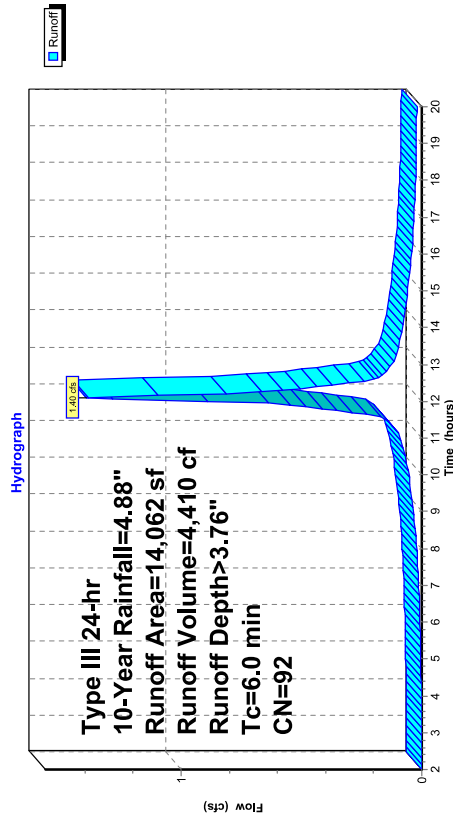
Runoff = 1.40 cfs @ 12.09 hrs, Volume= 4,410 cf, Depth> 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)		CN	Description		
1,425	39	>75% Grass cover, Good, HSG A			
12,637	98	Paved parking, HSG A			
14,062	92	Weighted Average			
1,425		10.13% Pervious Area			
12,637		89.87% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Direct Entry,

Subcatchment DA-2: DA-2



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Existign Conditions  
Type III 24-hr 10-Year Rainfall=4.88"  
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Summary for Subcatchment DA-3: DA-3

[47] Hint: Peak is 117% of capacity of segment #3

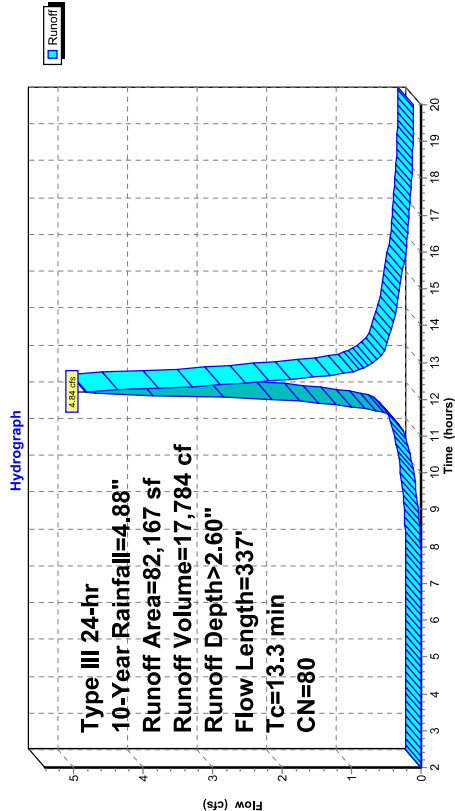
Runoff = 4.84 cfs @ 12.19 hrs, Volume= 17,784 cf, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description			
25,116	39	>75% Grass cover, Good, HSG A			
57,051	98	Paved parking, HSG A			
82,167	80	Weighted Average			
25,116	30.57%	Pervious Area			
57,051	69.43%	Impervious Area			
Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	

Sheet Flow, Grass: Short n= 0.150 P2= 3.12"  
Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps  
Pipe Channel, PIPE FLOW 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25'  
n= 0.010 PVC, smooth interior

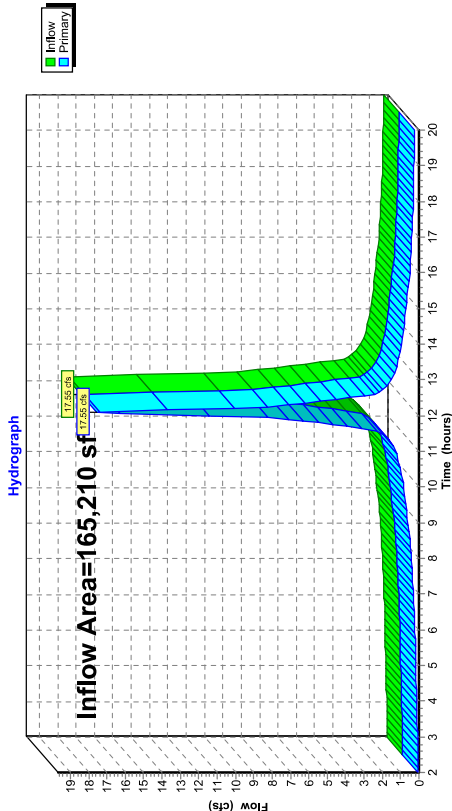
Subcatchment DA-3: DA-3



Summary for Link POA-1: Mill Brook

Inflow Area = 165,210 sf, 98.31% Impervious, Inflow Depth > 4.31" for 10-Year event  
Inflow = 17.55 cfs @ 12.09 hrs, Volume= 59,359 cf  
Primary = 17.55 cfs @ 12.09 hrs, Volume= 59,359 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

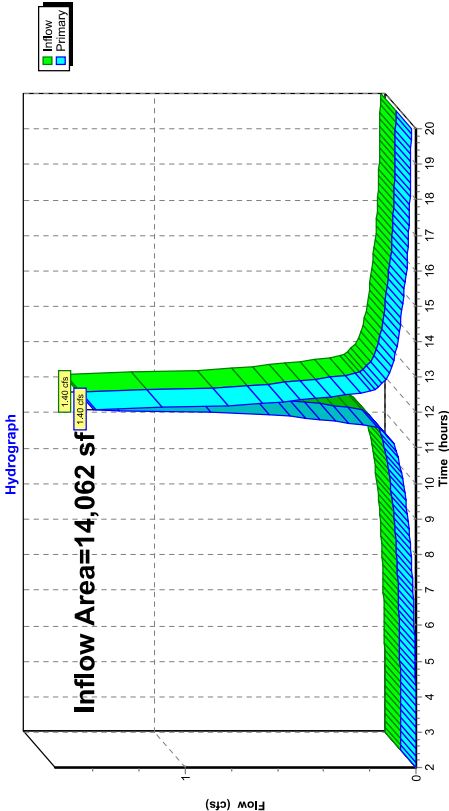
Link POA-1: Mill Brook



**Summary for Link POA-2: Grove Street**

Inflow Area = 14,062 sf, 89.87% Impervious, Inflow Depth > 3.76" for 10-Year event  
Inflow = 1.40 cfs @ 12.09 hrs, Volume= 4,410 cf  
Primary = 1.40 cfs @ 12.09 hrs, Volume= 4,410 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

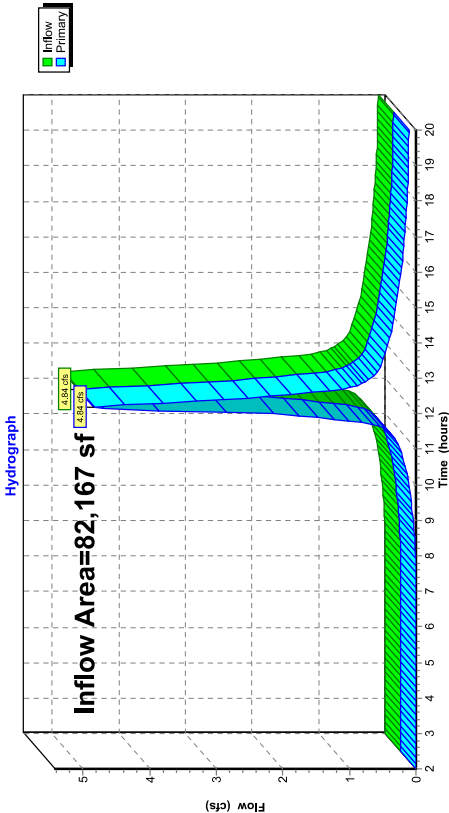
**Link POA-2: Grove Street**



**Summary for Link POA-3: Arlington High School**

Inflow Area = 82,167 sf, 69.43% Impervious, Inflow Depth > 2.60" for 10-Year event  
Inflow = 4.84 cfs @ 12.19 hrs, Volume= 17,784 cf  
Primary = 4.84 cfs @ 12.19 hrs, Volume= 17,784 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-3: Arlington High School**



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Type III 24-hr 25-Year Rainfall=6.19"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-2

Runoff Area=165,210 sf 98.31% Impervious Runoff Depth>5.55"  
Tc=6.0 min CN=97 Runoff=22.37 cfs 76,472 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,062 sf 89.87% Impervious Runoff Depth>4.99"  
Tc=6.0 min CN=92 Runoff=1.82 cfs 5,847 cf

SubcatchmentDA-3: DA-3

Runoff Area=82,167 sf 69.43% Impervious Runoff Depth>3.70"  
Flow Length=337' Tc=13.3 min CN=80 Runoff=6.83 cfs 25,330 cf

Link POA-1: Mill Brook

Inflow=22.37 cfs 76,472 cf  
Primary=22.37 cfs 76,472 cf

Link POA-2: Grove Street

Inflow=1.82 cfs 5,847 cf  
Primary=1.82 cfs 5,847 cf

Link POA-3: Arlington High School

Inflow=6.83 cfs 25,330 cf  
Primary=6.83 cfs 25,330 cf

Total Runoff Area = 261,439 sf Runoff Volume = 107,648 cf Average Runoff Depth = 4.94"  
11.22% Pervious = 29,333 sf 88.78% Impervious = 232,106 sf

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Existign Conditions  
Type III 24-hr 25-Year Rainfall=6.19"  
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Summary for Subcatchment DA-1: DA-2

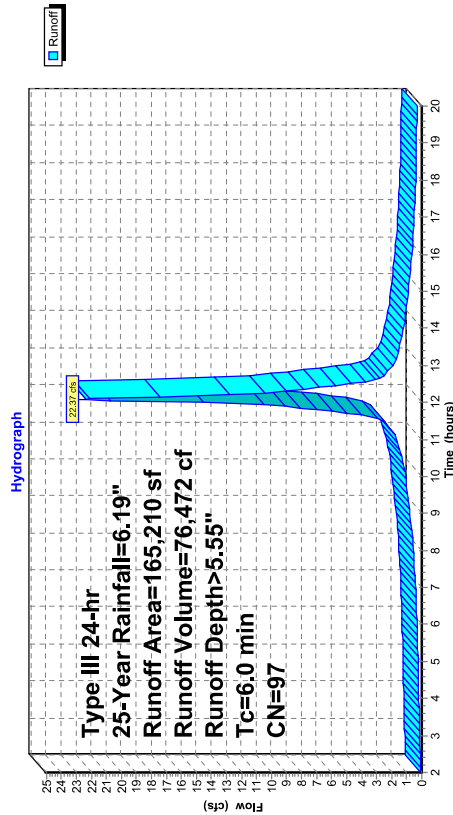
Runoff = 22.37 cfs @ 12.09 hrs, Volume= 76,472 cf, Depth> 5.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

Area (sf)	CN	Description
2,792	49	50-75% Grass cover, Fair, HSG A
162,418	98	Paved parking, HSG A
165,210	97	Weighted Average
2,792		1.69% Pervious Area
162,418		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment DA-1: DA-2



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Type III 24-hr 25-Year Rainfall=6.19"  
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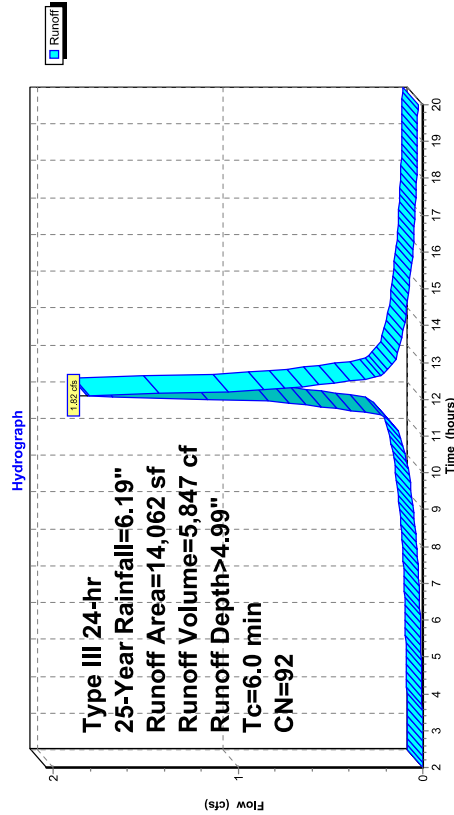
**Summary for Subcatchment DA-2: DA-2**

Runoff = 1.82 cfs @ 12.09 hrs, Volume= 5,847 cf, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

Area (sf)	CN	Description			
1,425	39	>75% Grass cover, Good, HSG A			
12,637	98	Paved parking, HSG A			
14,062	92	Weighted Average			
1,425		10.13% Pervious Area			
12,637		89.87% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Subcatchment DA-2: DA-2**



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Existign Conditions  
Type III 24-hr 25-Year Rainfall=6.19"  
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**Summary for Subcatchment DA-3: DA-3**

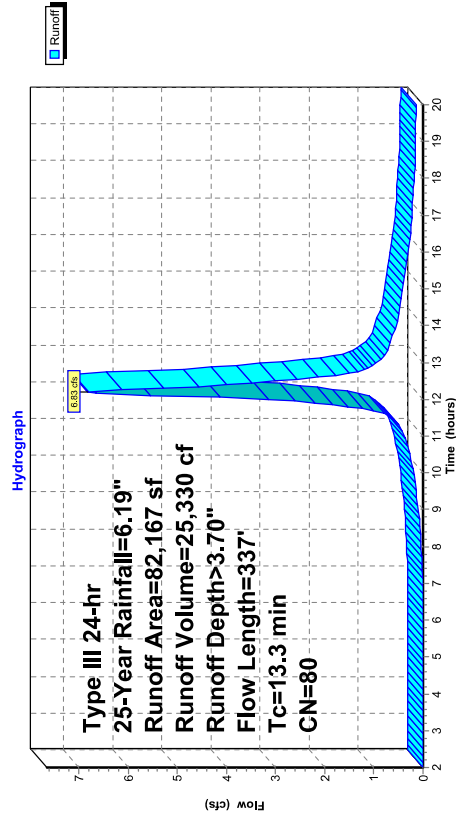
[47] Hint: Peak is 165% of capacity of segment #3

Runoff = 6.83 cfs @ 12.18 hrs, Volume= 25,330 cf, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

Area (sf)	CN	Description		
25,116	39	>75% Grass cover, Good, HSG A		
57,051	98	Paved parking, HSG A		
82,167	80	Weighted Average		
25,116	30.57%	Pervious Area		
57,051	69.43%	Impervious Area		
Tc (min)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0150	0.15	<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.12"
1.8	112	0.0210	1.01	<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0080	5.27	4.14 <b>Pipe Channel, PIPE FLOW</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
13.3	337	Total		

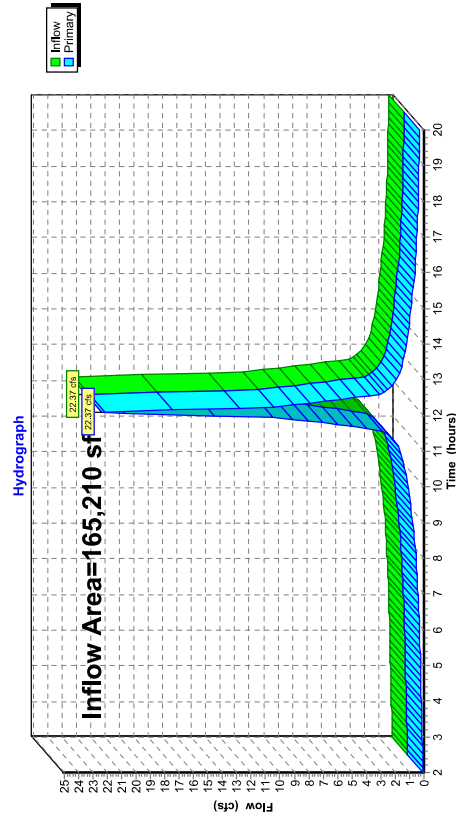
Subcatchment DA-3: DA-3



Summary for Link POA-1: Mill Brook

Inflow Area = 165,210 sf, 98.31% Impervious, Inflow Depth > 5.55" for 25-Year event  
Inflow = 22.37 cfs @ 12.09 hrs, Volume= 76,472 cf  
Primary = 22.37 cfs @ 12.09 hrs, Volume= 76,472 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

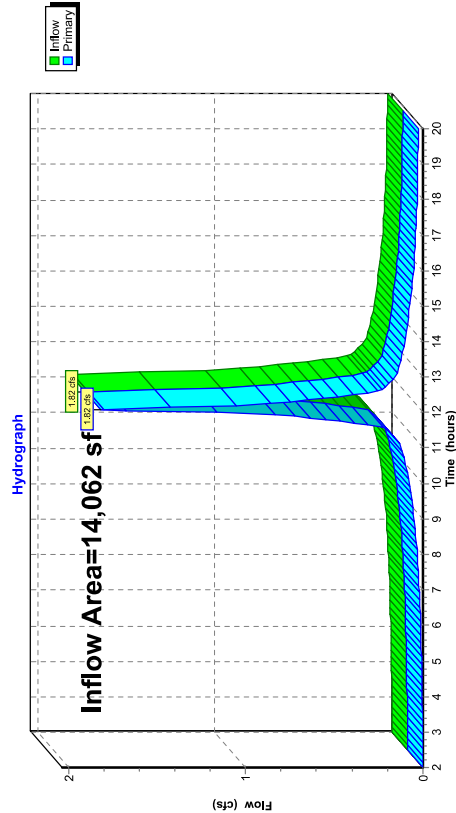


**Summary for Link POA-2: Grove Street**

Inflow Area = 14,062 sf, 89.87% Impervious, Inflow Depth > 4.99" for 25-Year event  
Inflow = 1.82 cfs @ 12.09 hrs, Volume= 5,847 cf  
Primary = 1.82 cfs @ 12.09 hrs, Volume= 5,847 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-2: Grove Street**

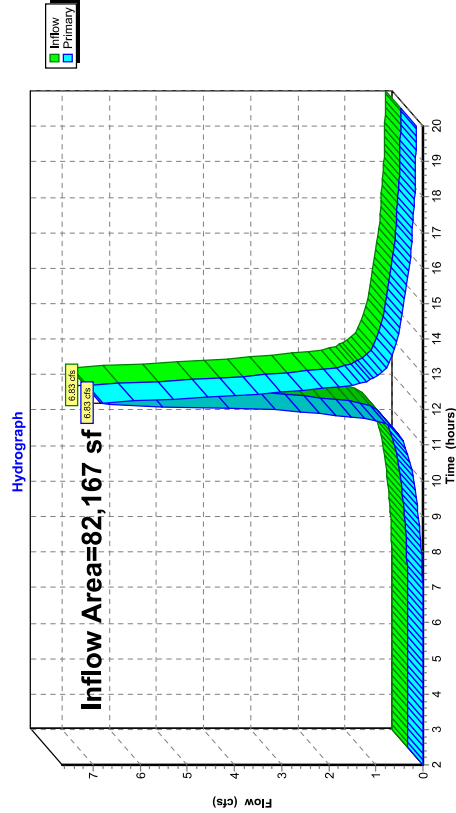


**Summary for Link POA-3: Arlington High School**

Inflow Area = 82,167 sf, 69.43% Impervious, Inflow Depth > 3.70" for 25-Year event  
Inflow = 6.83 cfs @ 12.18 hrs, Volume= 25,330 cf  
Primary = 6.83 cfs @ 12.18 hrs, Volume= 25,330 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-3: Arlington High School**





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Type III 24-hr 50-Year Rainfall=7.42"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-2

Runoff Area=165,210 sf 98.31% Impervious Runoff Depth>6.72"  
Tc=6.0 min CN=97 Runoff=26.88 cfs 92,526 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,062 sf 89.87% Impervious Runoff Depth>6.15"  
Tc=6.0 min CN=92 Runoff=2.21 cfs 7,204 cf

SubcatchmentDA-3: DA-3

Runoff Area=82,167 sf 69.43% Impervious Runoff Depth>4.77"  
Flow Length=337' Tc=13.3 min CN=80 Runoff=8.73 cfs 32,671 cf

Link POA-1: Mill Brook

Inflow=26.88 cfs 92,526 cf  
Primary=26.88 cfs 92,526 cf

Link POA-2: Grove Street

Inflow=2.21 cfs 7,204 cf  
Primary=2.21 cfs 7,204 cf

Link POA-3: Arlington High School

Inflow=8.73 cfs 32,671 cf  
Primary=8.73 cfs 32,671 cf

Total Runoff Area = 261,439 sf Runoff Volume = 132,401 cf Average Runoff Depth = 6.08"  
11.22% Pervious = 29,333 sf 88.78% Impervious = 232,106 sf

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Existign Conditions  
Type III 24-hr 50-Year Rainfall=7.42"  
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Summary for Subcatchment DA-1: DA-2

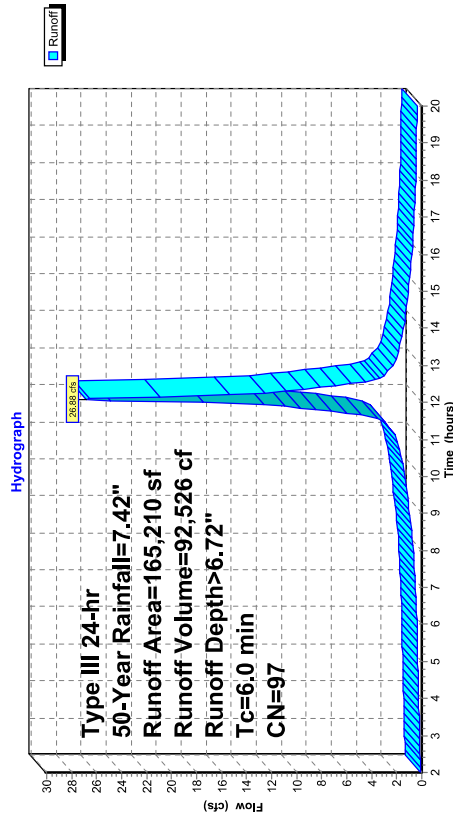
Runoff = 26.88 cfs @ 12.09 hrs, Volume= 92,526 cf, Depth> 6.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
2,792	49	50-75% Grass cover, Fair, HSG A
162,418	98	Paved parking, HSG A
165,210	97	Weighted Average
2,792		1.69% Pervious Area
162,418		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment DA-1: DA-2



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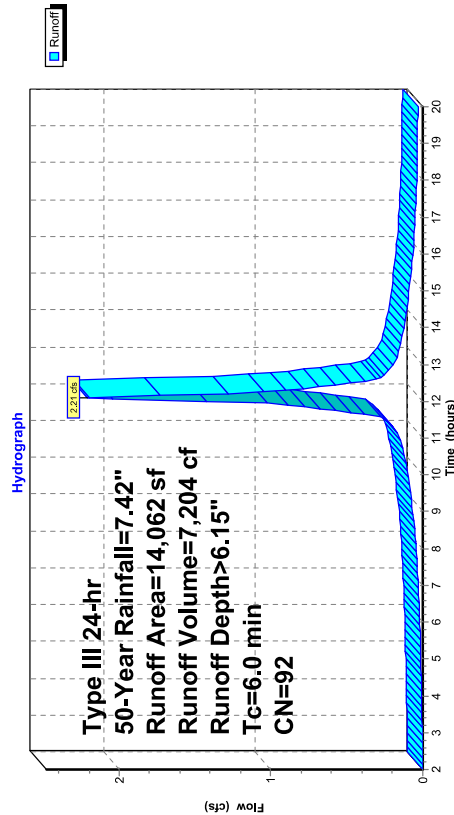
**Summary for Subcatchment DA-2: DA-2**

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 7,204 cf, Depth> 6.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description			
1,425	39	>75% Grass cover, Good, HSG A			
12,637	98	Paved parking, HSG A			
14,062	92	Weighted Average			
1,425		10.13% Pervious Area			
12,637		89.87% Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft) Velocity (ft/sec) Capacity (cfs) Description			
6.0					Direct Entry,

**Subcatchment DA-2: DA-2**



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Type III 24-hr 50-Year Rainfall=7.42"  
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**Summary for Subcatchment DA-3: DA-3**

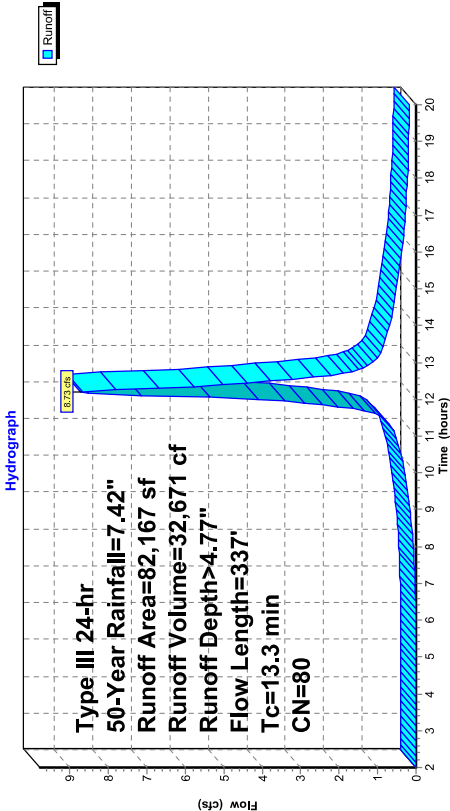
[47] Hint: Peak is 211% of capacity of segment #3

Runoff = 8.73 cfs @ 12.18 hrs, Volume= 32,671 cf, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description			
25,116	39	>75% Grass cover, Good, HSG A			
57,051	98	Paved parking, HSG A			
82,167	80	Weighted Average			
25,116	30.57%	Pervious Area			
57,051	69.43%	Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0150	0.15		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.12"
1.8	112	0.0210	1.01		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0080	5.27	4.14	<b>Pipe Channel, PIPE FLOW</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
13.3	337	Total			

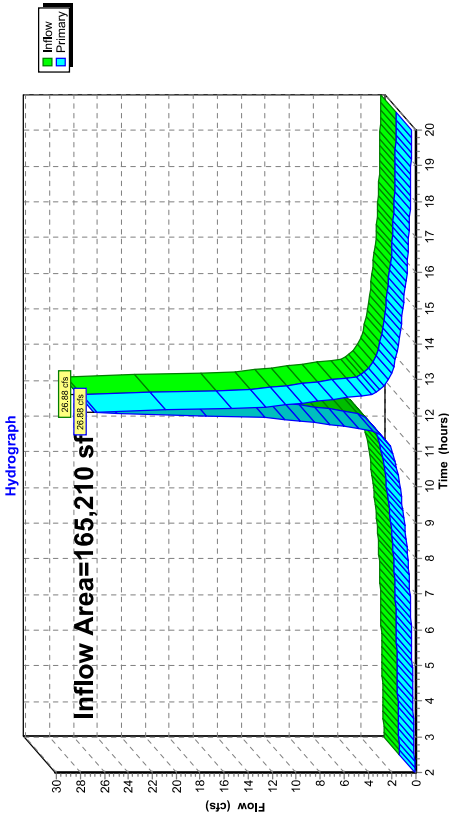
**Subcatchment DA-3: DA-3**



**Summary for Link POA-1: Mill Brook**

Inflow Area = 165,210 sf, 98.31% Impervious, Inflow Depth > 6.72" for 50-Year event  
Inflow = 26.88 cfs @ 12.09 hrs, Volume= 92,526 cf  
Primary = 26.88 cfs @ 12.09 hrs, Volume= 92,526 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-1: Mill Brook**

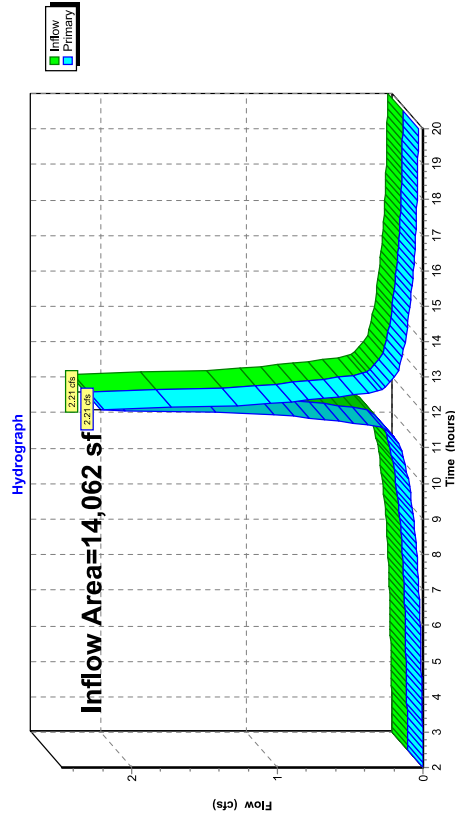


**Summary for Link POA-2: Grove Street**

Inflow Area = 14,062 sf, 89.87% Impervious, Inflow Depth > 6.15" for 50-Year event  
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 7,204 cf  
Primary = 2.21 cfs @ 12.09 hrs, Volume= 7,204 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-2: Grove Street**

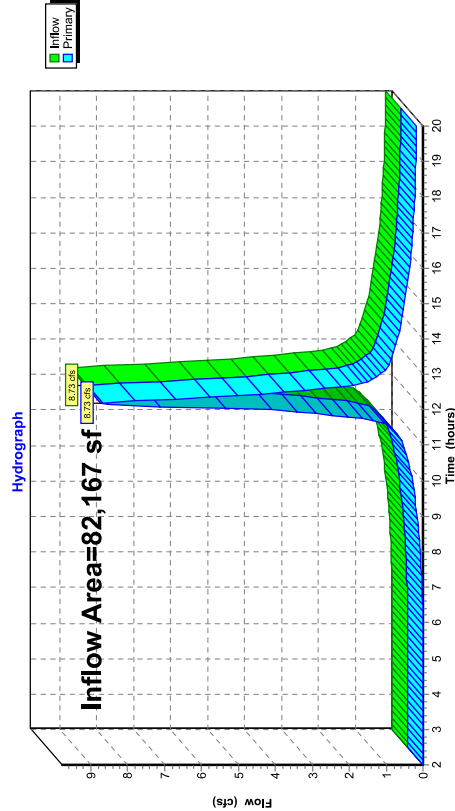


**Summary for Link POA-3: Arlington High School**

Inflow Area = 82,167 sf, 69.43% Impervious, Inflow Depth > 4.77" for 50-Year event  
Inflow = 8.73 cfs @ 12.18 hrs, Volume= 32,671 cf  
Primary = 8.73 cfs @ 12.18 hrs, Volume= 32,671 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-3: Arlington High School**



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Type III 24-hr 100-Year Rainfall=8.89"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**SubcatchmentDA-1: DA-2**

Runoff Area=165,210 sf 98.31% Impervious Runoff Depth>8.11"  
Tc=6.0 min CN=97 Runoff=32.26 cfs 111,693 cf

**SubcatchmentDA-2: DA-2**

Runoff Area=14,062 sf 89.87% Impervious Runoff Depth>7.54"  
Tc=6.0 min CN=92 Runoff=2.68 cfs 8,834 cf

**SubcatchmentDA-3: DA-3**

Runoff Area=82,167 sf 69.43% Impervious Runoff Depth>6.08"  
Flow Length=337' Tc=13.3 min CN=80 Runoff=11.01 cfs 41,649 cf

**Link POA-1: Mill Brook**

Inflow=32.26 cfs 111,693 cf  
Primary=32.26 cfs 111,693 cf

**Link POA-2: Grove Street**

Inflow=2.68 cfs 8,834 cf  
Primary=2.68 cfs 8,834 cf

**Link POA-3: Arlington High School**

Inflow=11.01 cfs 41,649 cf  
Primary=11.01 cfs 41,649 cf

**Total Runoff Area = 261,439 sf Runoff Volume = 162,176 cf Average Runoff Depth = 7.44"**  
**11.22% Pervious = 29,333 sf 88.78% Impervious = 232,106 sf**

**Arlington-EX**

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Type III 24-hr 100-Year Rainfall=8.89"  
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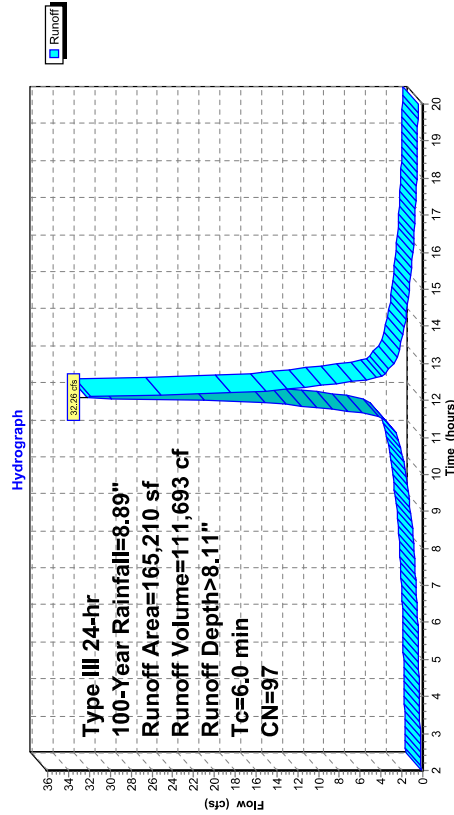
**Summary for Subcatchment DA-1: DA-2**

Runoff = 32.26 cfs @ 12.09 hrs, Volume= 111,693 cf, Depth> 8.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
2,792	49	50-75% Grass cover, Fair, HSG A
162,418	98	Paved parking, HSG A
165,210	97	Weighted Average
2,792		1.69% Pervious Area
162,418		98.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-1: DA-2**

**Arlington-EX**

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Existign Conditions  
Type III 24-hr 100-Year Rainfall=8.89"  
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**Summary for Subcatchment DA-2: DA-2**

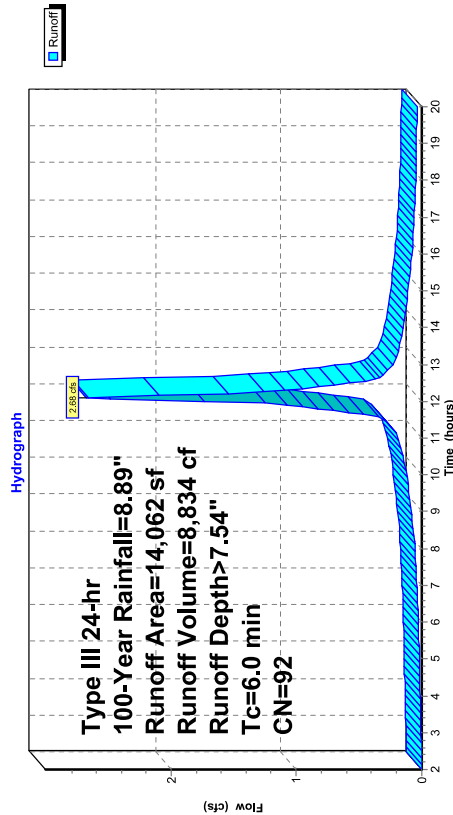
Runoff = 2.68 cfs @ 12.09 hrs, Volume= 8,834 cf, Depth> 7.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
1,425	39	>75% Grass cover, Good, HSG A
12,637	98	Paved parking, HSG A
14,062	92	Weighted Average
1,425		10.13% Pervious Area
12,637		89.87% Impervious Area
Tc (min)	Length (feet)	Slope (ft/ft)    Velocity (ft/sec)    Capacity (cfs)    Description
6.0		<b>Direct Entry,</b>

**Direct Entry,**

**Subcatchment DA-2: DA-2**



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Existign Conditions  
Type III 24-hr 100-Year Rainfall=8.89"  
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**Summary for Subcatchment DA-3: DA-3**

[47] Hint: Peak is 266% of capacity of segment #3

Runoff = 11.01 cfs @ 12.18 hrs, Volume= 41,649 cf, Depth> 6.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

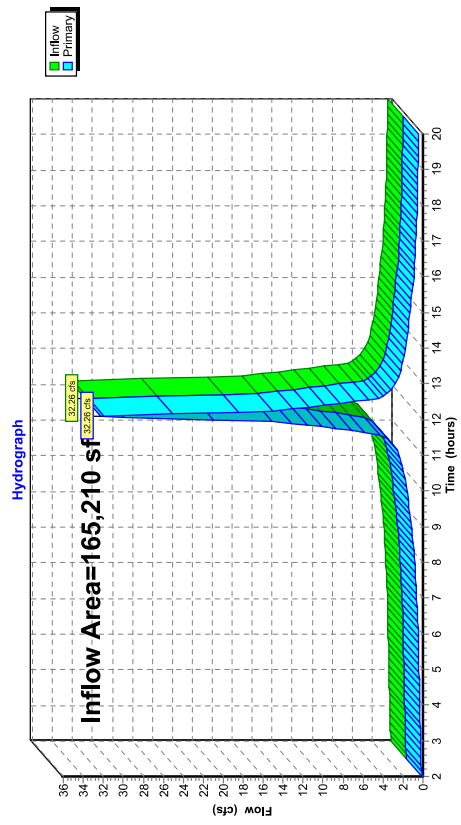
Area (sf)	CN	Description			
25,116	39	>75% Grass cover, Good, HSG A			
57,051	98	Paved parking, HSG A			
82,167	80	Weighted Average			
25,116	30.57%	Pervious Area			
57,051	69.43%	Impervious Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	100	0.0150	0.15		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.12"
1.8	112	0.0210	1.01		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.4	125	0.0080	5.27	4.14	<b>Pipe Channel, PIPE FLOW</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
13.3	337	Total			



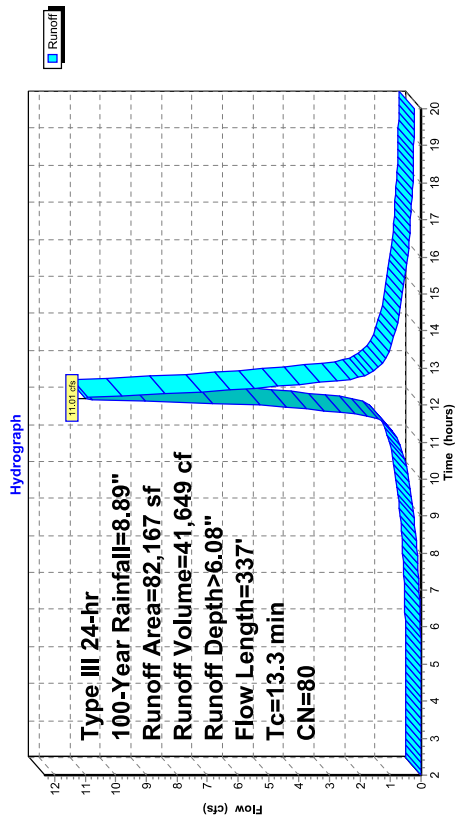
Summary for Link POA-1: Mill Brook

Inflow Area = 165,210 sf, 98.31% Impervious, Inflow Depth > 8.11" for 100-Year event  
Inflow = 32.26 cfs @ 12.09 hrs, Volume= 111,693 cf  
Primary = 32.26 cfs @ 12.09 hrs, Volume= 111,693 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook



Subcatchment DA-3: DA-3

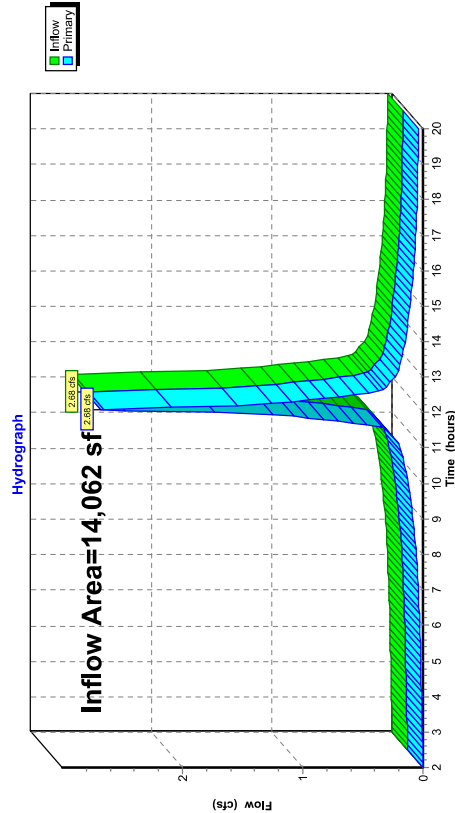


**Summary for Link POA-2: Grove Street**

Inflow Area =      14,062 sf, 89.87% Impervious, Inflow Depth > 7.54" for 100-Year event  
Inflow      =      2.68 cfs @ 12.09 hrs, Volume=      8,834 cf  
Primary      =      2.68 cfs @ 12.09 hrs, Volume=      8,834 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-2: Grove Street**

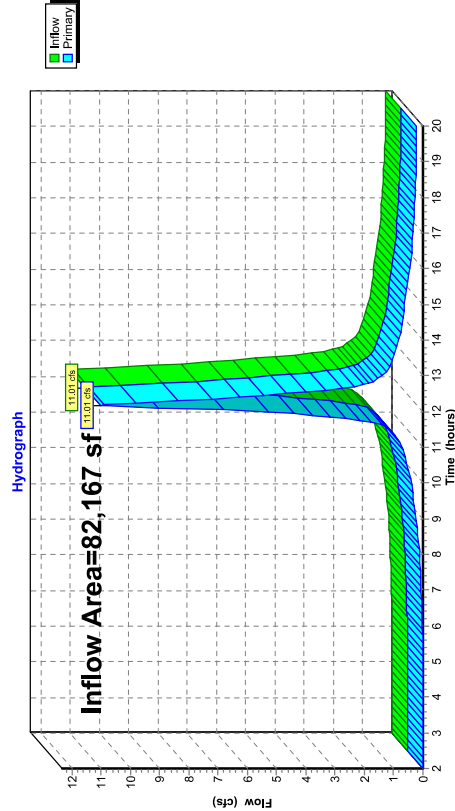


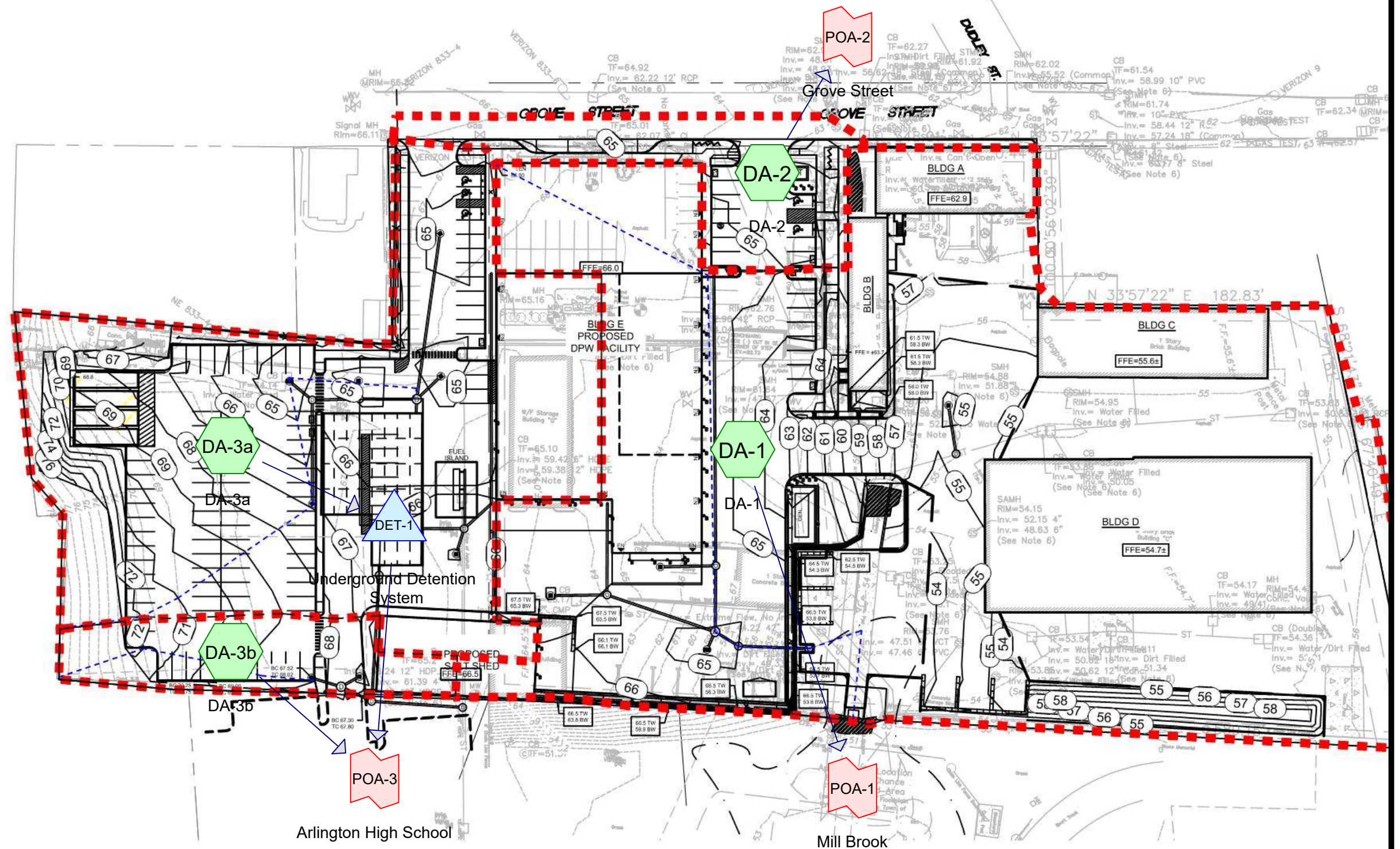
**Summary for Link POA-3: Arlington High School**

Inflow Area =      82,167 sf, 69.43% Impervious, Inflow Depth > 6.08" for 100-Year event  
Inflow      =      11.01 cfs @ 12.18 hrs, Volume=      41,649 cf  
Primary      =      11.01 cfs @ 12.18 hrs, Volume=      41,649 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

**Link POA-3: Arlington High School**





## Routing Diagram for Arlington-PR

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**Rainfall Events Listing**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	Type III 24-hr		Default	24.00	1	3.23	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.88	2
3	25-Year	Type III 24-hr		Default	24.00	1	6.19	2
4	50-Year	Type III 24-hr		Default	24.00	1	7.42	2
5	100-Year	Type III 24-hr		Default	24.00	1	8.89	2

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**Area Listing (all nodes)**

Area (sq-ft)	CN	Description (subcatchment-numbers)
24,169	39	>75% Grass cover, Good, HSG A (DA-1, DA-2, DA-3a, DA-3b)
237,270	98	Paved parking, HSG A (DA-1, DA-2, DA-3a, DA-3b)
<b>261,439</b>	<b>93</b>	<b>TOTAL AREA</b>

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**Soil Listing (all nodes)**

Area (sq-ft)	Soil Group	Subcatchment Numbers
261,439	HSG A	DA-1, DA-2, DA-3a, DA-3b
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
<b>261,439</b>		<b>TOTAL AREA</b>

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**Ground Covers (all nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
24,169	0	0	0	0	24,169	>75% Grass
237,270	0	0	0	0	237,270	cover Good
<b>261,439</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>261,439</b>	Paved parking
						<b>TOTAL AREA</b>

**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DET-1	60.60	59.40	100.0	0.0120	0.010	12.0	0.0	0.0

Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>SubcatchmentDA-1: DA-1</b>	Runoff Area=164,858 sf Tc=6.0 min	94.89% Impervious CN=95	Runoff Depth>2.54" Runoff=10.96 cfs	34,835 cf
<b>SubcatchmentDA-2: DA-2</b>	Runoff Area=14,034 sf Tc=6.0 min	87.20% Impervious CN=90	Runoff Depth>2.07" Runoff=0.80 cfs	2,415 cf
<b>SubcatchmentDA-3a: DA-3a</b>	Runoff Area=72,161 sf Tc=6.0 min	84.29% Impervious CN=89	Runoff Depth>1.98" Runoff=3.98 cfs	11,905 cf
<b>SubcatchmentDA-3b: DA-3b</b>	Runoff Area=10,386 sf Tc=6.0 min	74.79% Impervious CN=83	Runoff Depth>1.52" Runoff=0.45 cfs	1,314 cf
<b>Pond DET-1: Underground Detention</b>	Peak Elev=61.50'	Storage=3,835 cf	Inflow=3.98 cfs Outflow=1.52 cfs	11,905 cf 11,275 cf
<b>Link POA-1: Mill Brook</b>	Inflow=10.96 cfs Primary=10.96 cfs			34,835 cf 34,835 cf
<b>Link POA-2: Grove Street</b>	Inflow=0.80 cfs Primary=0.80 cfs			2,415 cf 2,415 cf
<b>Link POA-3: Arlington High School</b>	Inflow=1.76 cfs Primary=1.76 cfs			12,589 cf 12,589 cf

**Total Runoff Area = 261,439 sf    Runoff Volume = 50,469 cf    Average Runoff Depth = 2.32"  
 9.24% Pervious = 24,169 sf    90.76% Impervious = 237,270 sf**

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Type III 24-hr 2-Year Rainfall=3.23"  
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**Summary for Subcatchment DA-1: DA-1**

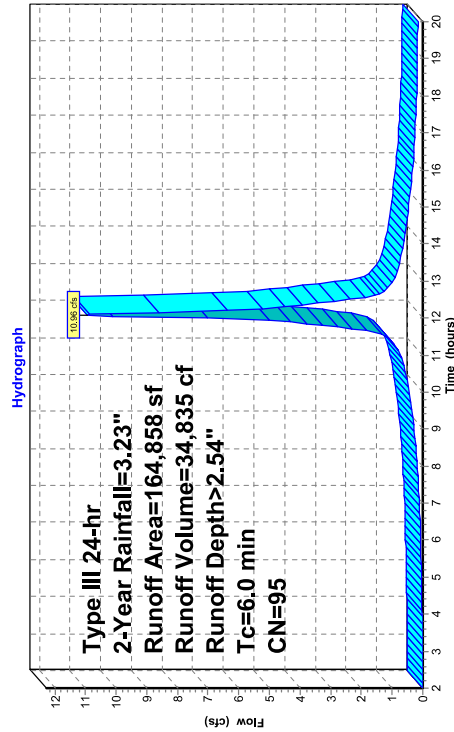
Runoff = 10.96 cfs @ 12.09 hrs, Volume= 34,835 cf, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
8,417	39	>75% Grass cover, Good, HSG A
156,441	98	Paved parking, HSG A
164,858	95	Weighted Average
8,417		5.11% Pervious Area
156,441		94.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-1: DA-1**



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Type III 24-hr 2-Year Rainfall=3.23"  
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**Summary for Subcatchment DA-2: DA-2**

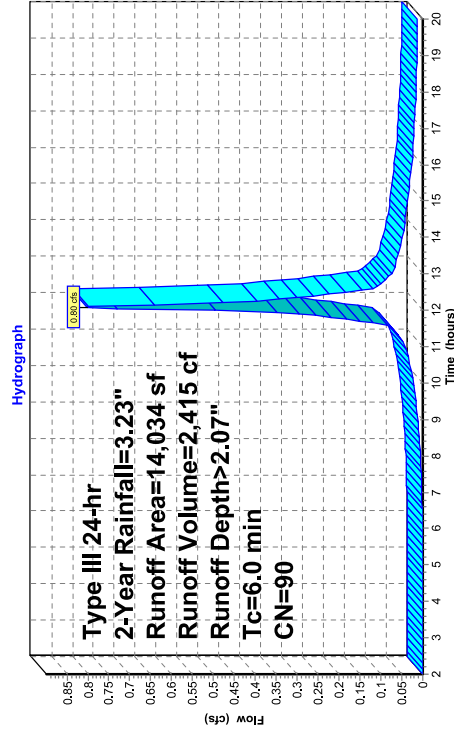
Runoff = 0.80 cfs @ 12.09 hrs, Volume= 2,415 cf, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
1,796	39	>75% Grass cover, Good, HSG A
12,238	98	Paved parking, HSG A
14,034	90	Weighted Average
1,796		12.80% Pervious Area
12,238		87.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-2: DA-2**





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Type III 24-hr 2-Year Rainfall=3.23"

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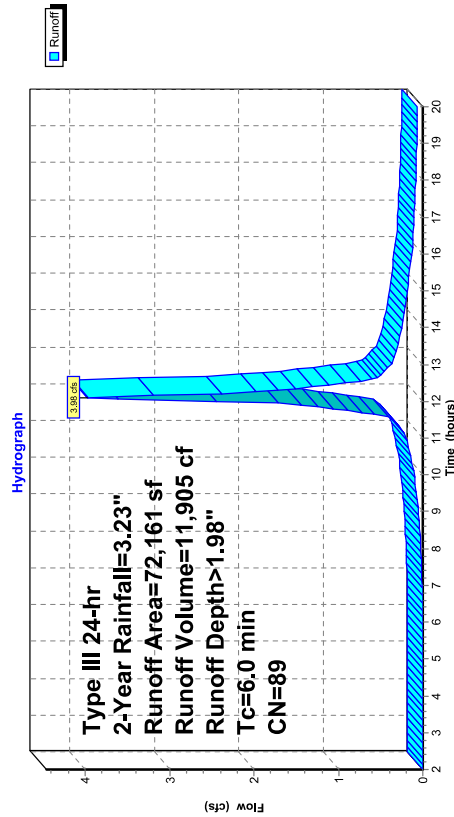
**Summary for Subcatchment DA-3a: DA-3a**

Runoff = 3.98 cfs @ 12.09 hrs, Volume= 11,905 cf, Depth&gt; 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
11,338	39	>75% Grass cover, Good, HSG A
60,823	98	Paved parking, HSG A
72,161	89	Weighted Average
11,338		15.71% Pervious Area
60,823		84.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-3a: DA-3a****Arlington-PR**

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Type III 24-hr 2-Year Rainfall=3.23"

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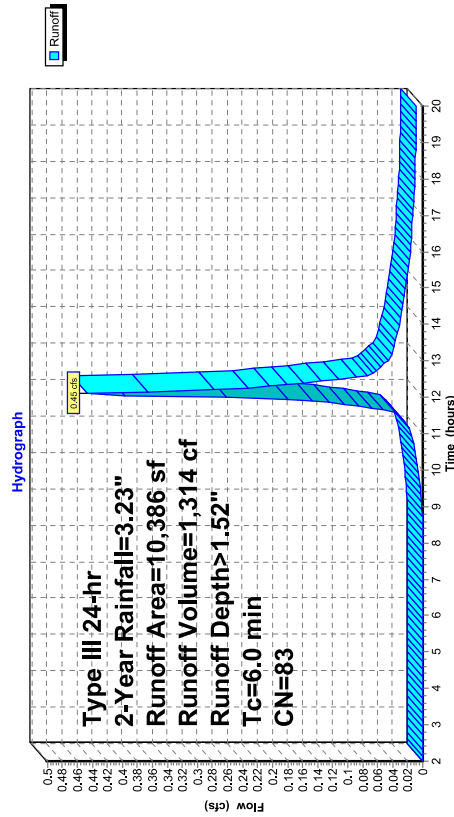
**Summary for Subcatchment DA-3b: DA-3b**

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 1,314 cf, Depth&gt; 1.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.23"

Area (sf)	CN	Description
2,618	39	>75% Grass cover, Good, HSG A
7,768	98	Paved parking, HSG A
10,386	83	Weighted Average
2,618		25.21% Pervious Area
7,768		74.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-3b: DA-3b**

Summary for Pond DET-1: Underground Detention System

Inflow Area = 72,161 sf, 84.29% Impervious, Inflow Depth > 1.98" for 2-Year event  
Inflow = 3.98 cfs @ 12.09 hrs, Volume= 11,905 cf  
Outflow = 1.52 cfs @ 12.35 hrs, Volume= 11,275 cf, Atten= 62%, Lag= 15.4 min  
Primary = 1.52 cfs @ 12.35 hrs, Volume= 11,275 cf

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 61.50' @ 12.35 hrs Surf.Area= 4,480 sf Storage= 3,835 cf

Plug-Flow detention time= 62.2 min calculated for 11,275 cf (95% of inflow)  
Center-of-Mass det. time= 42.8 min ( 820.6 - 777.8 )

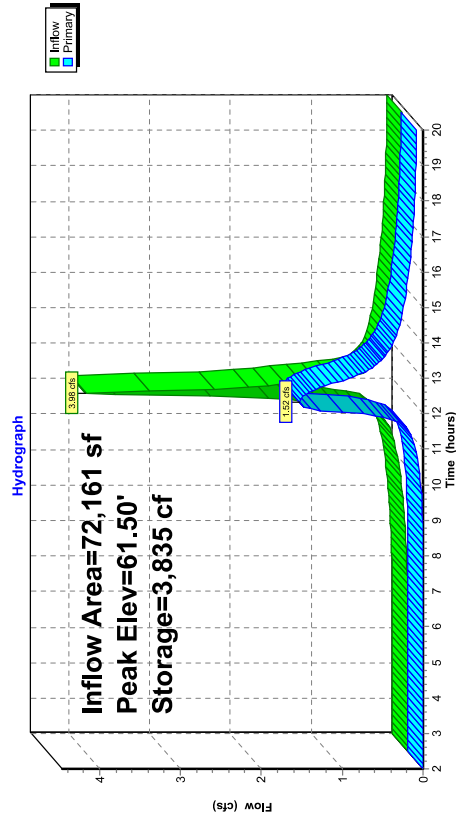
Volume	Invert	Avail.Storage	Storage Description
#1	60.60'	7,672 cf	<b>Oldcastle StormCapture SC1 3' x 24'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 32.0 cf perimeter wall
#2	60.60'	5,112 cf	<b>Oldcastle StormCapture SC1 3' x 16'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 24.0 cf perimeter wall
			12,784 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	<b>12.0" Round Culvert</b> L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 59.40' S= 0.0120 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	60.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	62.60'	Limited to weir flow at low heads <b>4.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.52 cfs @ 12.35 hrs HW=61.50' (Free Discharge)

- 1=Culvert (Passes 1.52 cfs of 1.90 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 1.52 cfs @ 3.88 fps)
- 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DET-1: Underground Detention System

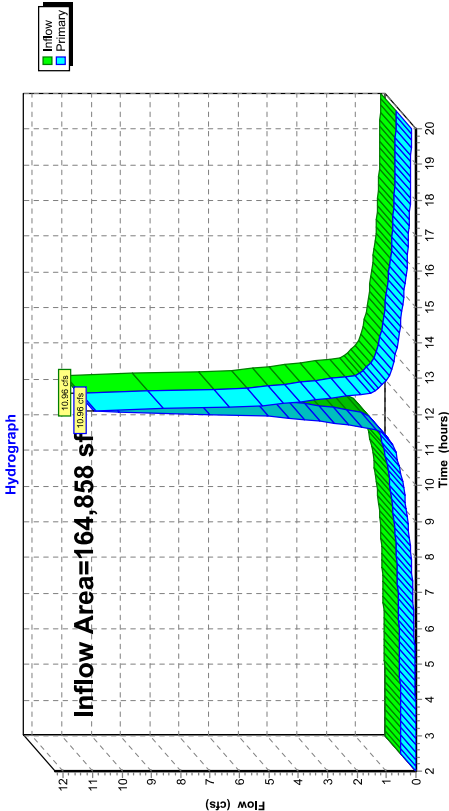


Summary for Link POA-1: Mill Brook

Inflow Area = 164,858 sf, 94.89% Impervious, Inflow Depth > 2.54" for 2-Year event  
Inflow = 10.96 cfs @ 12.09 hrs, Volume= 34,835 cf  
Primary = 10.96 cfs @ 12.09 hrs, Volume= 34,835 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

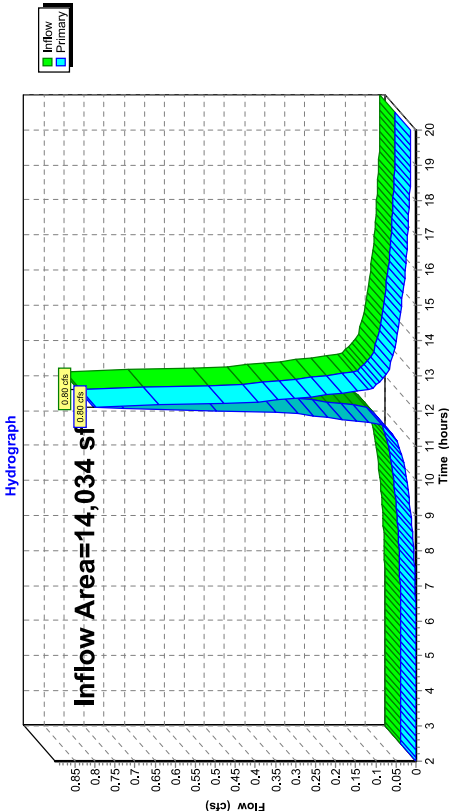


Summary for Link POA-2: Grove Street

Inflow Area = 14,034 sf, 87.20% Impervious, Inflow Depth > 2.07" for 2-Year event  
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 2,415 cf  
Primary = 0.80 cfs @ 12.09 hrs, Volume= 2,415 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-2: Grove Street



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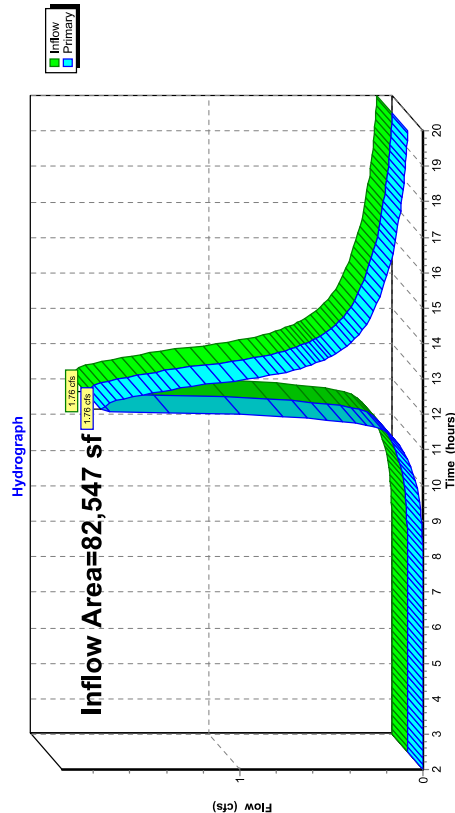
Proposed Conditions  
Type III 24-hr 2-Year Rainfall=3.23"  
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Summary for Link POA-3: Arlington High School

Inflow Area = 82,547 sf, 83.09% Impervious, Inflow Depth > 1.83" for 2-Year event  
Inflow = 1.76 cfs @ 12.16 hrs, Volume= 12,589 cf  
Primary = 1.76 cfs @ 12.16 hrs, Volume= 12,589 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School



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Type III 24-hr 10-Year Rainfall=4.88"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-1

Runoff Area=164,858 sf 94.89% Impervious Runoff Depth>4.09"  
Tc=6.0 min CN=95 Runoff=17.14 cfs 56,171 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,034 sf 87.20% Impervious Runoff Depth>3.55"  
Tc=6.0 min CN=90 Runoff=1.34 cfs 4,157 cf

SubcatchmentDA-3a: DA-3a

Runoff Area=72,161 sf 84.29% Impervious Runoff Depth>3.45"  
Tc=6.0 min CN=89 Runoff=6.75 cfs 20,763 cf

SubcatchmentDA-3b: DA-3b

Runoff Area=10,386 sf 74.79% Impervious Runoff Depth>2.87"  
Tc=6.0 min CN=83 Runoff=0.84 cfs 2,487 cf

Pond DET-1: Underground Detention

Peak Elev=62.17' Storage=6,678 cf Inflow=6.75 cfs 20,763 cf  
Outflow=2.17 cfs 19,979 cf

Link POA-1: Mill Brook

Inflow=17.14 cfs 56,171 cf  
Primary=17.14 cfs 56,171 cf

Link POA-2: Grove Street

Inflow=1.34 cfs 4,157 cf  
Primary=1.34 cfs 4,157 cf

Link POA-3: Arlington High School

Inflow=2.64 cfs 22,466 cf  
Primary=2.64 cfs 22,466 cf

Total Runoff Area = 261,439 sf Runoff Volume = 83,579 cf Average Runoff Depth = 3.84"  
9.24% Pervious = 24,169 sf 90.76% Impervious = 237,270 sf

# Arlington-PR

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Type III 24-hr 10-Year Rainfall=4.88"

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## Summary for Subcatchment DA-1: DA-1

Runoff = 17.14 cfs @ 12.09 hrs, Volume= 56,171 cf, Depth> 4.09"

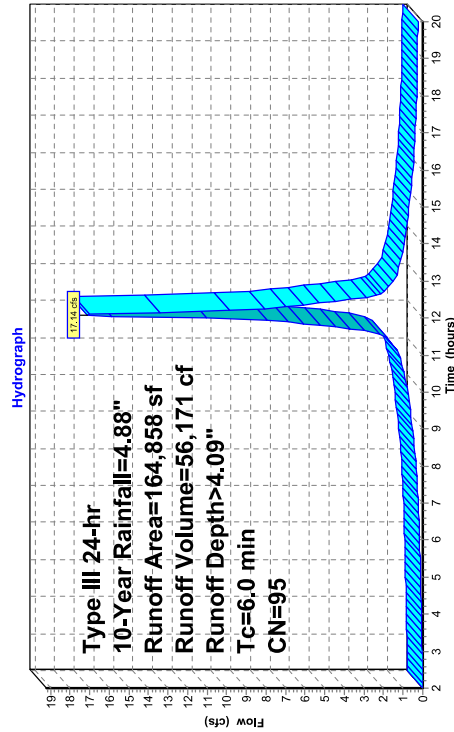
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
8,417	39	>75% Grass cover, Good, HSG A
156,441	98	Paved parking, HSG A
164,858	95	Weighted Average
8,417	5.11%	Pervious Area
156,441	94.89%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

## Subcatchment DA-1: DA-1



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Type III 24-hr 10-Year Rainfall=4.88"

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## Summary for Subcatchment DA-2: DA-2

Runoff = 1.34 cfs @ 12.09 hrs, Volume= 4,157 cf, Depth> 3.55"

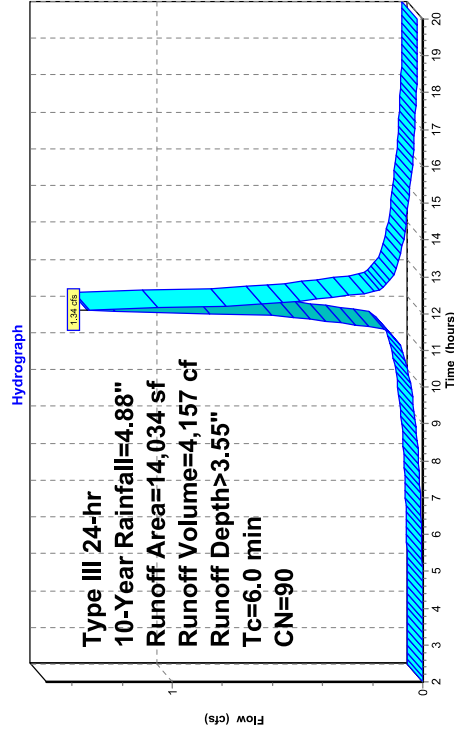
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
1,796	39	>75% Grass cover, Good, HSG A
12,238	98	Paved parking, HSG A
14,034	90	Weighted Average
1,796	12.80%	Pervious Area
12,238	87.20%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

## Subcatchment DA-2: DA-2



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Proposed Conditions  
Type III 24-hr 10-Year Rainfall=4.88"  
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**Summary for Subcatchment DA-3a: DA-3a**

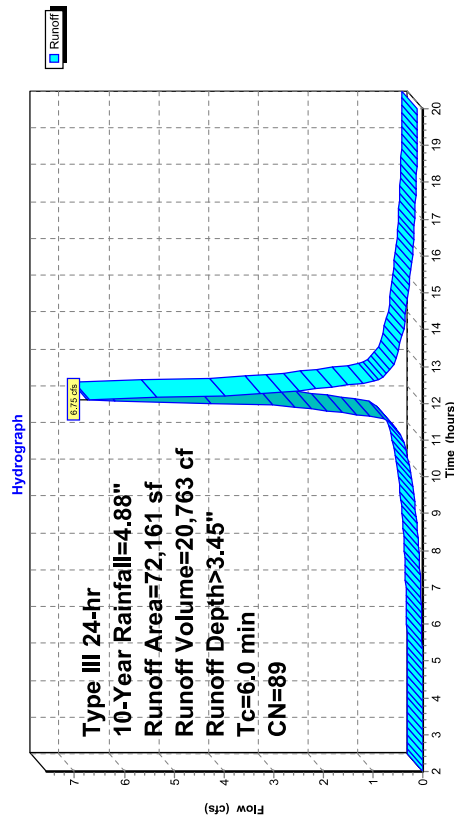
Runoff = 6.75 cfs @ 12.09 hrs, Volume= 20,763 cf, Depth> 3.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
11,338	39	>75% Grass cover, Good, HSG A
60,823	98	Paved parking, HSG A
72,161	89	Weighted Average
11,338		15.71% Pervious Area
60,823		84.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-3a: DA-3a**



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**Summary for Subcatchment DA-3b: DA-3b**

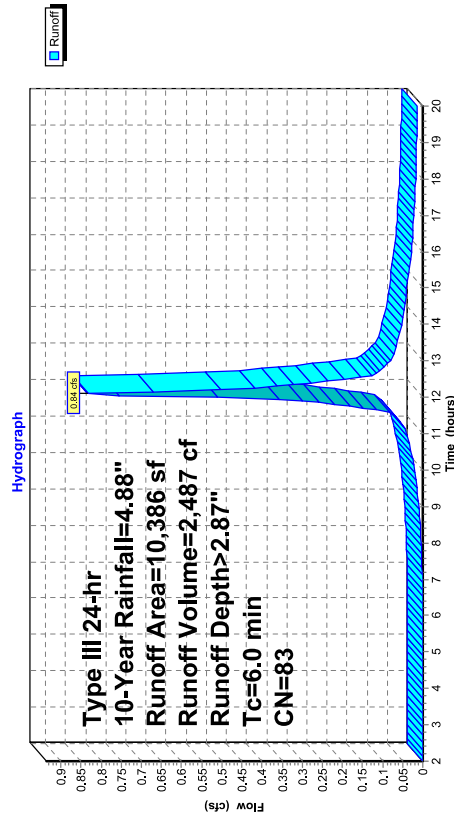
Runoff = 0.84 cfs @ 12.09 hrs, Volume= 2,487 cf, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
2,618	39	>75% Grass cover, Good, HSG A
7,768	98	Paved parking, HSG A
10,386	83	Weighted Average
2,618		25.21% Pervious Area
7,768		74.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-3b: DA-3b**





Summary for Pond DET-1: Underground Detention System

Inflow Area = 72,161 sf, 84.29% Impervious, Inflow Depth > 3.45" for 10-Year event  
Inflow = 6.75 cfs @ 12.09 hrs, Volume= 20,763 cf  
Outflow = 2.17 cfs @ 12.40 hrs, Volume= 19,979 cf, Atten= 68%, Lag= 18.5 min  
Primary = 2.17 cfs @ 12.40 hrs, Volume= 19,979 cf

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 62.17' @ 12.40 hrs Surf.Area= 4,480 sf Storage= 6,678 cf  
Plug-Flow detention time= 57.1 min calculated for 19,979 cf (96% of inflow)  
Center-of-Mass det. time= 42.5 min ( 807.0 - 764.5 )

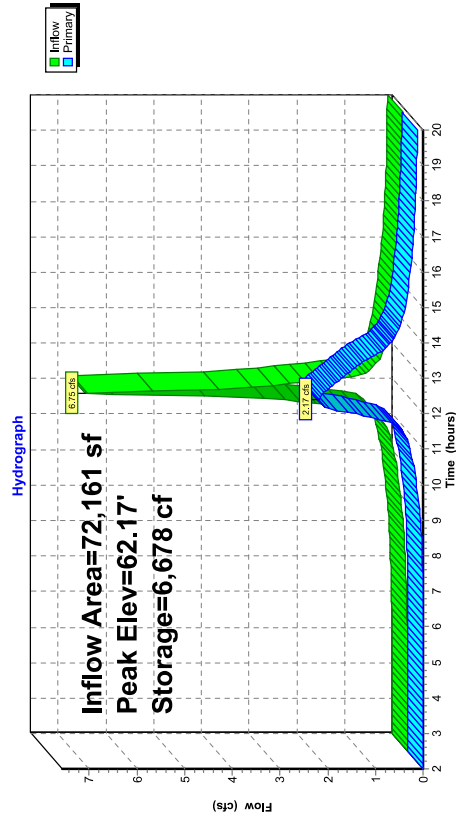
Volume	Invert	Avail.Storage	Storage Description
#1	60.60'	7,672 cf	<b>Oldcastle StormCapture SC1 3' x 24</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 32.0 cf perimeter wall
#2	60.60'	5,112 cf	<b>Oldcastle StormCapture SC1 3' x 16</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 24.0 cf perimeter wall
			12,784 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	<b>12.0" Round Culvert</b> L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 59.40' S= 0.0120 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	60.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	62.60'	Limited to weir flow at low heads <b>4.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.17 cfs @ 12.40 hrs HW=62.17' (Free Discharge)

- 1=Culvert (Passes 2.17 cfs of 3.08 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 2.17 cfs @ 5.53 fps)
- 3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond DET-1: Underground Detention System

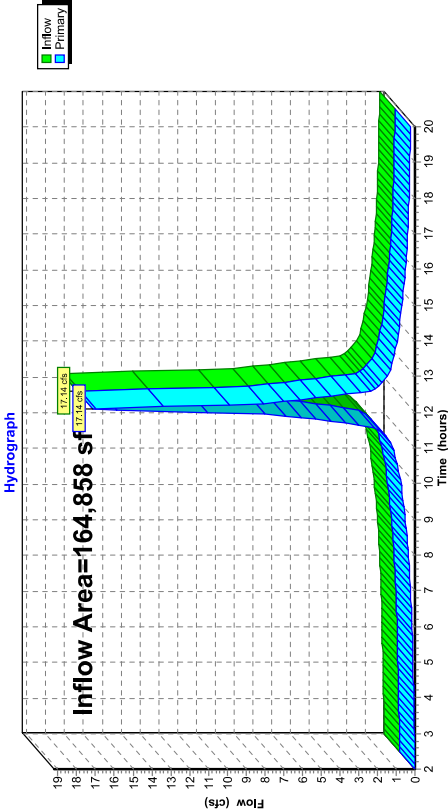


Summary for Link POA-1: Mill Brook

Inflow Area = 164,858 sf, 94.89% Impervious, Inflow Depth > 4.09" for 10-Year event  
Inflow = 17.14 cfs @ 12.09 hrs, Volume= 56,171 cf  
Primary = 17.14 cfs @ 12.09 hrs, Volume= 56,171 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

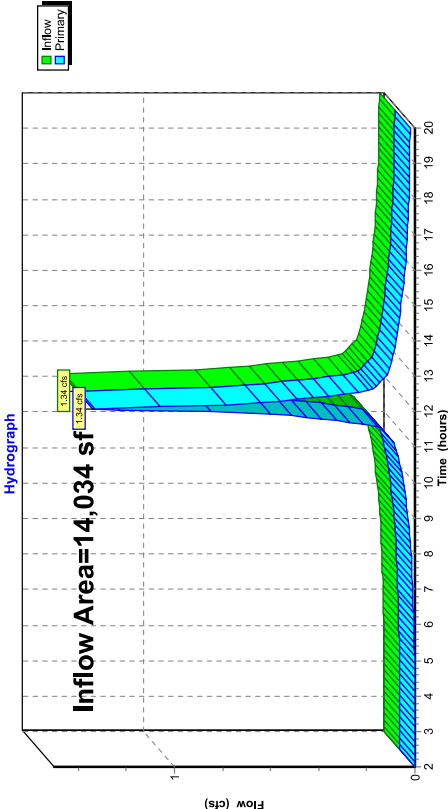


Summary for Link POA-2: Grove Street

Inflow Area = 14,034 sf, 87.20% Impervious, Inflow Depth > 3.55" for 10-Year event  
Inflow = 1.34 cfs @ 12.09 hrs, Volume= 4,157 cf  
Primary = 1.34 cfs @ 12.09 hrs, Volume= 4,157 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-2: Grove Street



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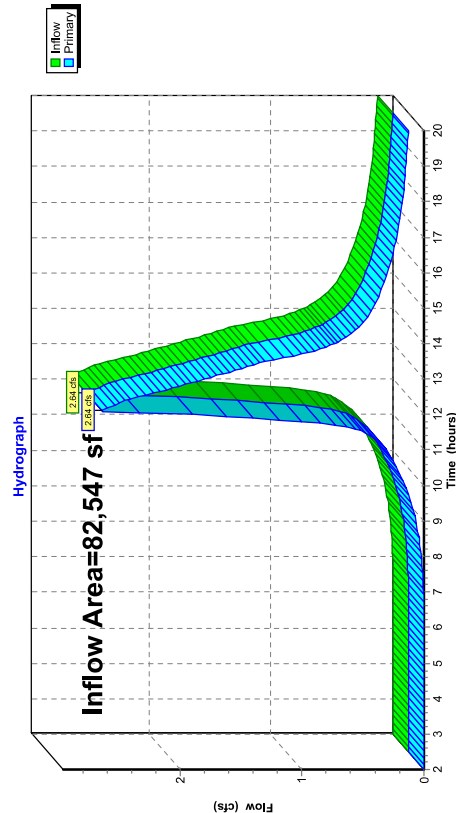
Proposed Conditions  
Type III 24-hr 10-Year Rainfall=4.88"  
Printed 10/22/2020  
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Summary for Link POA-3: Arlington High School

Inflow Area = 82,547 sf, 83.09% Impervious, Inflow Depth > 3.27" for 10-Year event  
Inflow = 2.64 cfs @ 12.13 hrs, Volume= 22,466 cf  
Primary = 2.64 cfs @ 12.13 hrs, Volume= 22,466 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School



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Type III 24-hr 25-Year Rainfall=6.19"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-1

Runoff Area=164,858 sf 94.89% Impervious Runoff Depth>5.33"  
Tc=6.0 min CN=95 Runoff=22.00 cfs 73,227 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,034 sf 87.20% Impervious Runoff Depth>4.77"  
Tc=6.0 min CN=90 Runoff=1.77 cfs 5,574 cf

SubcatchmentDA-3a: DA-3a

Runoff Area=72,161 sf 84.29% Impervious Runoff Depth>4.66"  
Tc=6.0 min CN=89 Runoff=8.95 cfs 28,001 cf

SubcatchmentDA-3b: DA-3b

Runoff Area=10,386 sf 74.79% Impervious Runoff Depth>4.02"  
Tc=6.0 min CN=83 Runoff=1.15 cfs 3,476 cf

Pond DET-1: Underground Detention

Peak Elev=62.71' Storage=8,971 cf Inflow=8.95 cfs 28,001 cf  
Outflow=2.96 cfs 27,112 cf

Link POA-1: Mill Brook

Inflow=22.00 cfs 73,227 cf  
Primary=22.00 cfs 73,227 cf

Link POA-2: Grove Street

Inflow=1.77 cfs 5,574 cf  
Primary=1.77 cfs 5,574 cf

Link POA-3: Arlington High School

Inflow=3.37 cfs 30,587 cf  
Primary=3.37 cfs 30,587 cf

Total Runoff Area = 261,439 sf Runoff Volume = 110,278 cf Average Runoff Depth = 5.06"  
9.24% Pervious = 24,169 sf 90.76% Impervious = 237,270 sf

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Type III 24-hr 25-Year Rainfall=6.19"  
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**Summary for Subcatchment DA-1: DA-1**

Runoff = 22.00 cfs @ 12.09 hrs, Volume= 73,227 cf, Depth> 5.33"

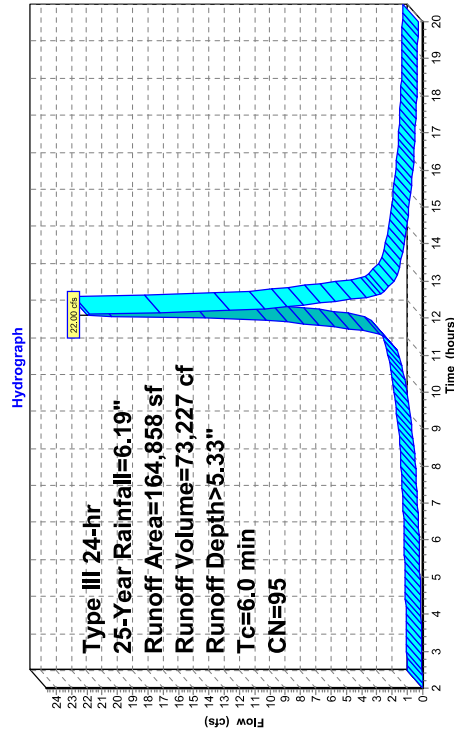
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

Area (sf)	CN	Description
8,417	39	>75% Grass cover, Good, HSG A
156,441	98	Paved parking, HSG A
164,858	95	Weighted Average
8,417	5.11%	Pervious Area
156,441	94.89%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-1: DA-1**



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Type III 24-hr 25-Year Rainfall=6.19"  
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**Summary for Subcatchment DA-2: DA-2**

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 5,574 cf, Depth> 4.77"

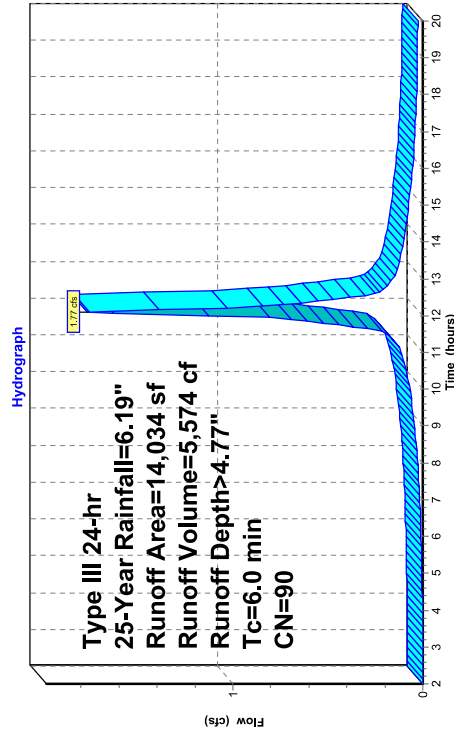
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

Area (sf)	CN	Description
1,796	39	>75% Grass cover, Good, HSG A
12,238	98	Paved parking, HSG A
14,034	90	Weighted Average
1,796	12.80%	Pervious Area
12,238	87.20%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-2: DA-2**



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Type III 24-hr 25-Year Rainfall=6.19"

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**Summary for Subcatchment DA-3a: DA-3a**

Runoff = 8.95 cfs @ 12.09 hrs, Volume= 28,001 cf, Depth&gt; 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

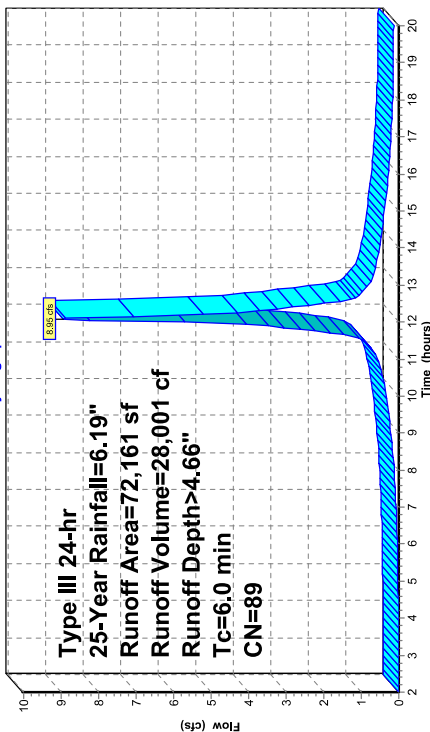
Area (sf)	CN	Description
11,338	39	>75% Grass cover, Good, HSG A
60,823	98	Paved parking, HSG A
72,161	89	Weighted Average
11,338		15.71% Pervious Area
60,823		84.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-3a: DA-3a**

Hydrograph

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Type III 24-hr 25-Year Rainfall=6.19"

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**Summary for Subcatchment DA-3b: DA-3b**

Runoff = 1.15 cfs @ 12.09 hrs, Volume= 3,476 cf, Depth&gt; 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-Year Rainfall=6.19"

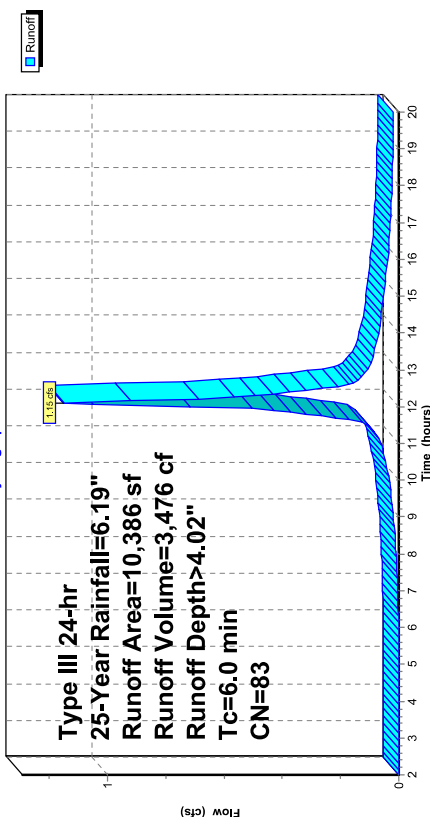
Area (sf)	CN	Description
2,618	39	>75% Grass cover, Good, HSG A
7,768	98	Paved parking, HSG A
10,386	83	Weighted Average
2,618		25.21% Pervious Area
7,768		74.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-3b: DA-3b**

Hydrograph



Summary for Pond DET-1: Underground Detention System

Inflow Area = 72,161 sf, 84.29% Impervious, Inflow Depth > 4.66" for 25-Year event  
Inflow = 8.95 cfs @ 12.09 hrs, Volume= 28,001 cf  
Outflow = 2.96 cfs @ 12.38 hrs, Volume= 27,112 cf, Atten= 67%, Lag= 17.8 min  
Primary = 2.96 cfs @ 12.38 hrs, Volume= 27,112 cf

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 62.71' @ 12.38 hrs Surf.Area= 4,480 sf Storage= 8,971 cf

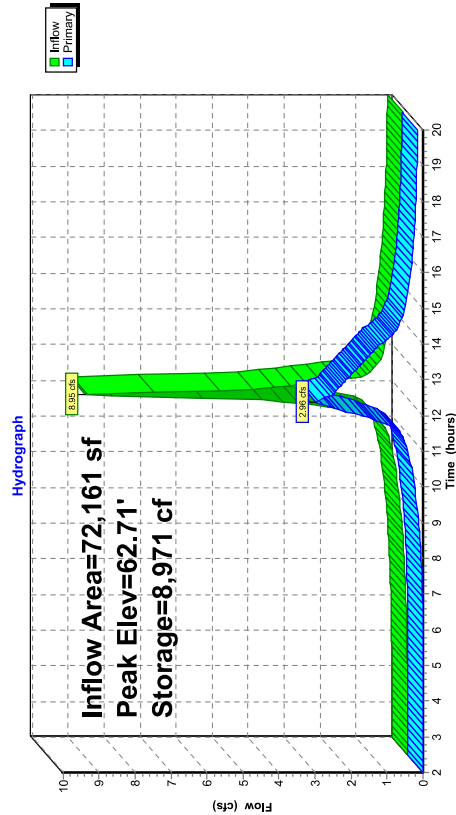
Plug-Flow detention time= 55.9 min calculated for 27,037 cf (97% of inflow)  
Center-of-Mass det. time= 43.3 min ( 800.6 - 757.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	60.60'	7,672 cf	<b>Oldcastle StormCapture SC1 3' x 24'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 32.0 cf perimeter wall
#2	60.60'	5,112 cf	<b>Oldcastle StormCapture SC1 3' x 16'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 24.0 cf perimeter wall
			12,784 cf Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	<b>12.0" Round Culvert</b> L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 59.40' S= 0.0120 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	60.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	62.60'	Limited to weir flow at low heads <b>4.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=2.95 cfs @ 12.38 hrs HW=62.70' (Free Discharge)  
1=Culvert (Passes 2.95 cfs of 3.78 cfs potential flow)  
2=Orifice/Grate (Orifice Controls 2.57 cfs @ 6.56 fps)  
3=Broad-Crested Rectangular Weir (Weir Controls 0.37 cfs @ 0.90 fps)

Pond DET-1: Underground Detention System



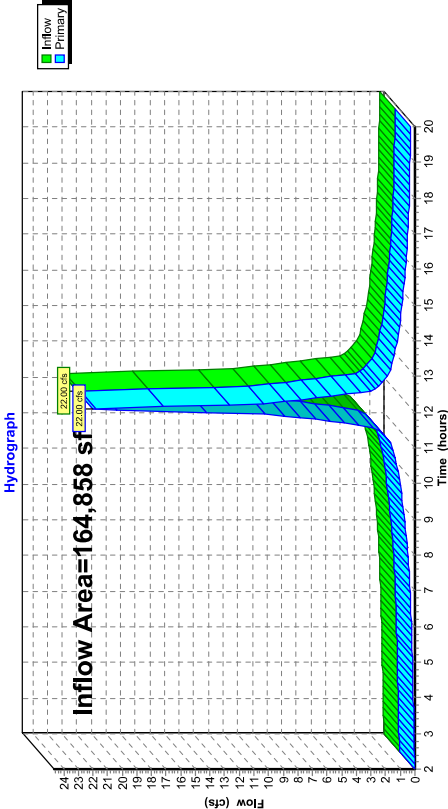


Summary for Link POA-1: Mill Brook

Inflow Area = 164,858 sf, 94.89% Impervious, Inflow Depth > 5.33" for 25-Year event  
Inflow = 22.00 cfs @ 12.09 hrs, Volume= 73,227 cf  
Primary = 22.00 cfs @ 12.09 hrs, Volume= 73,227 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

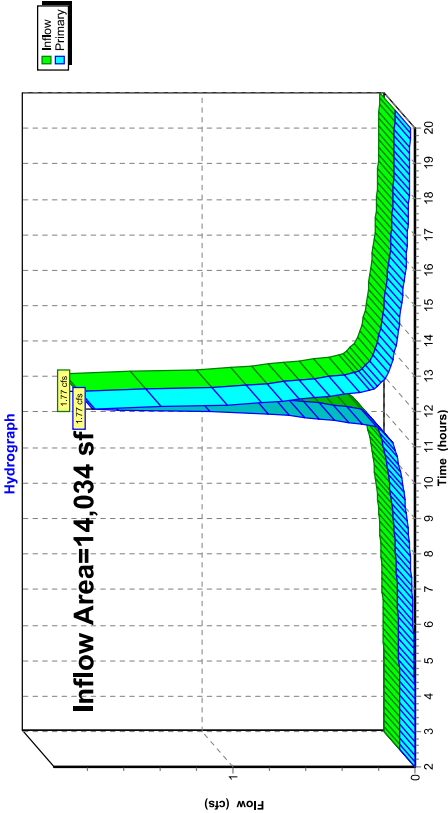


Summary for Link POA-2: Grove Street

Inflow Area = 14,034 sf, 87.20% Impervious, Inflow Depth > 4.77" for 25-Year event  
Inflow = 1.77 cfs @ 12.09 hrs, Volume= 5,574 cf  
Primary = 1.77 cfs @ 12.09 hrs, Volume= 5,574 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-2: Grove Street



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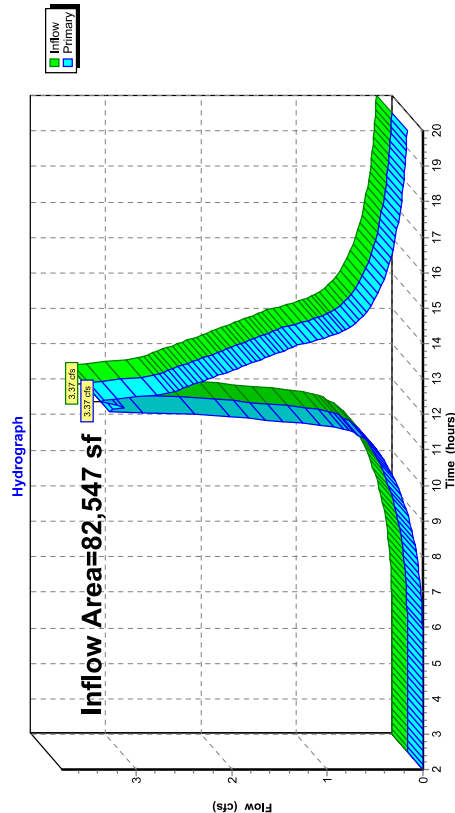
Proposed Conditions  
Type III 24-hr 25-Year Rainfall=6.19"  
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Summary for Link POA-3: Arlington High School

Inflow Area = 82,547 sf, 83.09% Impervious, Inflow Depth > 4.45" for 25-Year event  
Inflow = 3.37 cfs @ 12.36 hrs, Volume= 30,587 cf  
Primary = 3.37 cfs @ 12.36 hrs, Volume= 30,587 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School



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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentDA-1: DA-1

Runoff Area=164,858 sf 94.89% Impervious Runoff Depth>6.50"  
Tc=6.0 min CN=95 Runoff=26.54 cfs 89,264 cf

SubcatchmentDA-2: DA-2

Runoff Area=14,034 sf 87.20% Impervious Runoff Depth>5.92"  
Tc=6.0 min CN=90 Runoff=2.16 cfs 6,918 cf

SubcatchmentDA-3a: DA-3a

Runoff Area=72,161 sf 84.29% Impervious Runoff Depth>5.80"  
Tc=6.0 min CN=89 Runoff=10.99 cfs 34,879 cf

SubcatchmentDA-3b: DA-3b

Runoff Area=10,386 sf 74.79% Impervious Runoff Depth>5.12"  
Tc=6.0 min CN=83 Runoff=1.45 cfs 4,429 cf

Pond DET-1: Underground Detention

Peak Elev=63.04' Storage=10,410 cf Inflow=10.99 cfs 34,879 cf  
Outflow=4.16 cfs 33,904 cf

Link POA-1: Mill Brook

Inflow=26.54 cfs 89,264 cf  
Primary=26.54 cfs 89,264 cf

Link POA-2: Grove Street

Inflow=2.16 cfs 6,918 cf  
Primary=2.16 cfs 6,918 cf

Link POA-3: Arlington High School

Inflow=4.92 cfs 38,333 cf  
Primary=4.92 cfs 38,333 cf

Total Runoff Area = 261,439 sf Runoff Volume = 135,490 cf Average Runoff Depth = 6.22"  
9.24% Pervious = 24,169 sf 90.76% Impervious = 237,270 sf

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Type III 24-hr 50-Year Rainfall=7.42"

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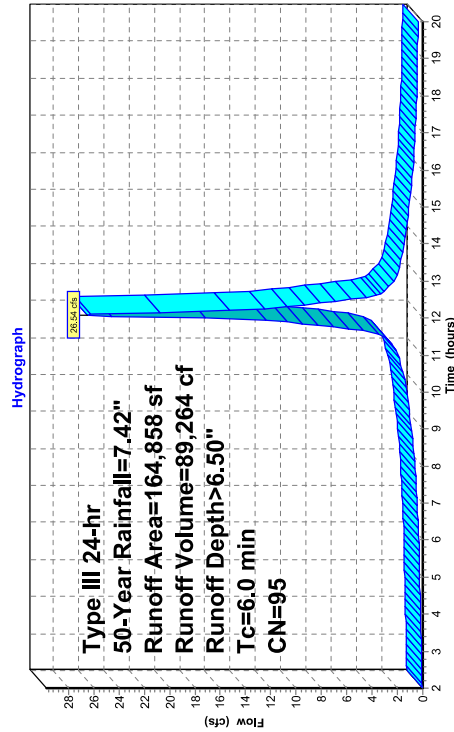
**Summary for Subcatchment DA-1: DA-1**

Runoff = 26.54 cfs @ 12.09 hrs, Volume= 89,264 cf, Depth&gt; 6.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
8,417	39	>75% Grass cover, Good, HSG A
156,441	98	Paved parking, HSG A
164,858	95	Weighted Average
8,417	5.11%	Pervious Area
156,441	94.89%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-1: DA-1****Arlington-PR**

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Type III 24-hr 50-Year Rainfall=7.42"

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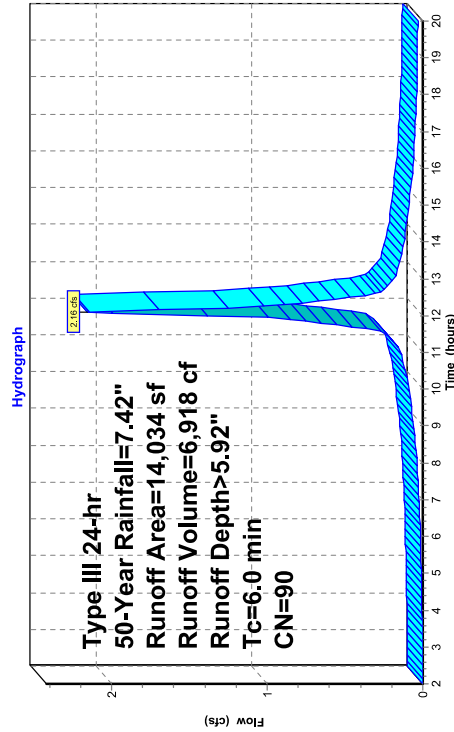
**Summary for Subcatchment DA-2: DA-2**

Runoff = 2.16 cfs @ 12.09 hrs, Volume= 6,918 cf, Depth&gt; 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
1,796	39	>75% Grass cover, Good, HSG A
12,238	98	Paved parking, HSG A
14,034	90	Weighted Average
1,796	12.80%	Pervious Area
12,238	87.20%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

**Subcatchment DA-2: DA-2**

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Type III 24-hr 50-Year Rainfall=7.42"  
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Runoff = 10.99 cfs @ 12.09 hrs, Volume= 34,879 cf, Depth> 5.80"

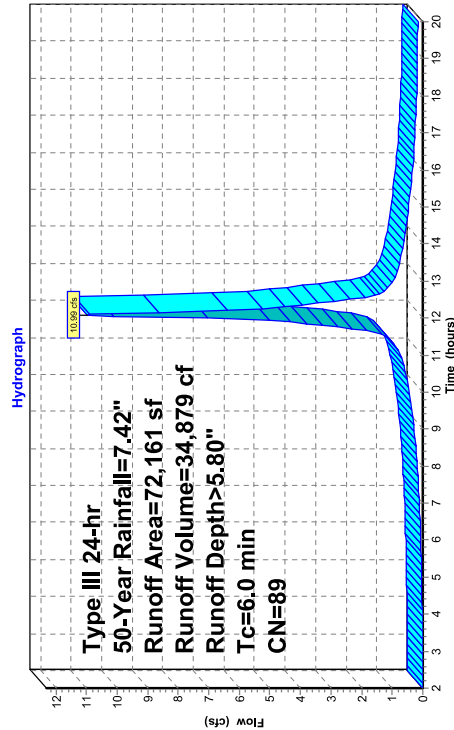
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
11,338	39	>75% Grass cover, Good, HSG A
60,823	98	Paved parking, HSG A
72,161	89	Weighted Average
11,338	15.71	% Pervious Area
60,823	84.29	% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-3a: DA-3a**



**Arlington-PR**

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Proposed Conditions  
Type III 24-hr 50-Year Rainfall=7.42"  
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**Summary for Subcatchment DA-3b: DA-3b**

Runoff = 1.45 cfs @ 12.09 hrs, Volume= 4,429 cf, Depth> 5.12"

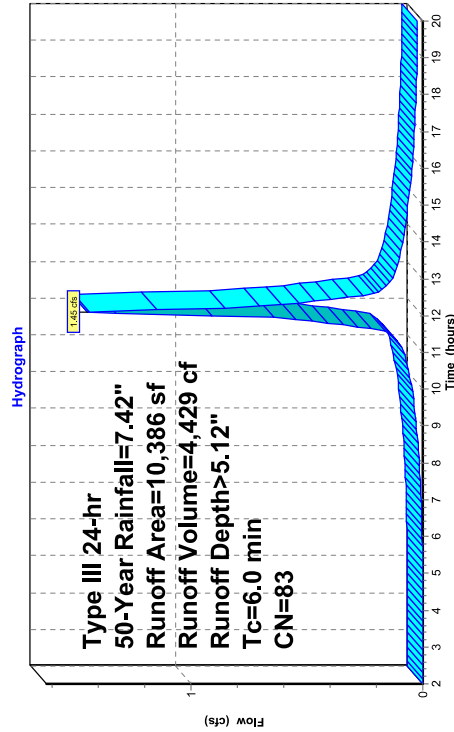
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50-Year Rainfall=7.42"

Area (sf)	CN	Description
2,618	39	>75% Grass cover, Good, HSG A
7,768	98	Paved parking, HSG A
10,386	83	Weighted Average
2,618	25.21	% Pervious Area
7,768	74.79	% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-3b: DA-3b**



**Summary for Pond DET-1: Underground Detention System**

Inflow Area = 72,161 sf, 84.29% Impervious, Inflow Depth > 5.80" for 50-Year event  
 Inflow = 10.99 cfs @ 12.09 hrs, Volume= 34,879 cf  
 Outflow = 4.16 cfs @ 12.33 hrs, Volume= 33,904 cf, Atten= 62%, Lag= 14.7 min  
 Primary = 4.16 cfs @ 12.33 hrs, Volume= 33,904 cf

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 63.04' @ 12.33 hrs Surf.Area= 4,480 sf Storage= 10,410 cf

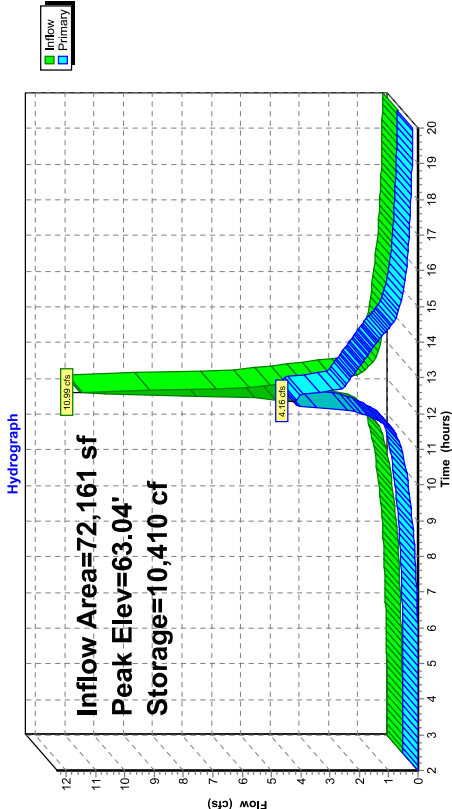
Plug-Flow detention time= 52.4 min calculated for 33,904 cf (97% of inflow)  
 Center-of-Mass det. time= 41.0 min ( 793.1 - 752.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	60.60'	7,672 cf	<b>Oldcastle StormCapture SC1 3' x 24'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 32.0 cf perimeter wall
#2	60.60'	5,112 cf	<b>Oldcastle StormCapture SC1 3' x 16'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 24.0 cf perimeter wall
		12,784 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	<b>12.0" Round Culvert</b> L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 59.40' S= 0.0120 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	60.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	62.60'	Limited to weir flow at low heads <b>4.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=4.16 cfs @ 12.33 hrs HW=63.04' (Free Discharge)  
 1=Culvert (Inlet Controls 4.16 cfs @ 5.29 fps)  
 2=Orifice/Grate (Passes < 2.80 cfs potential flow)  
 3=Broad-Crested Rectangular Weir (Passes < 3.45 cfs potential flow)

**Pond DET-1: Underground Detention System**

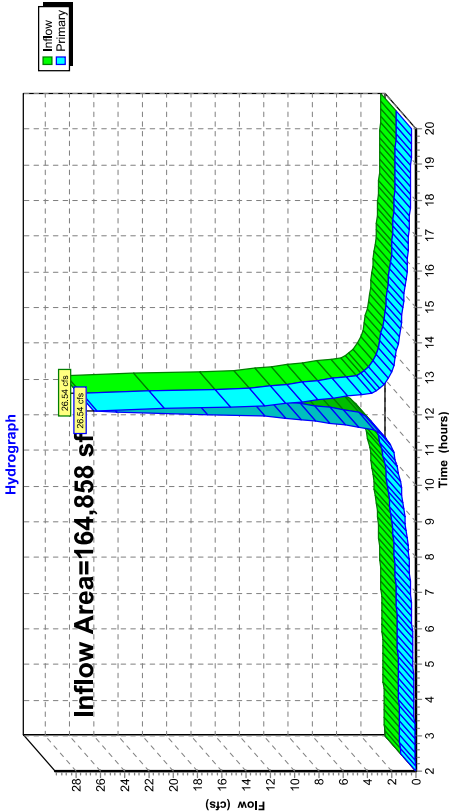


Summary for Link POA-1: Mill Brook

Inflow Area = 164,858 sf, 94.89% Impervious, Inflow Depth > 6.50" for 50-Year event  
Inflow = 26.54 cfs @ 12.09 hrs, Volume= 89,264 cf  
Primary = 26.54 cfs @ 12.09 hrs, Volume= 89,264 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

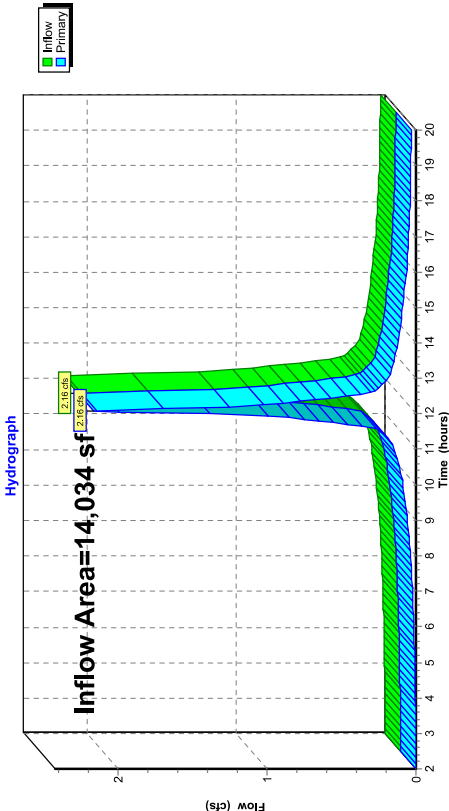


Summary for Link POA-2: Grove Street

Inflow Area = 14,034 sf, 87.20% Impervious, Inflow Depth > 5.92" for 50-Year event  
Inflow = 2.16 cfs @ 12.09 hrs, Volume= 6,918 cf  
Primary = 2.16 cfs @ 12.09 hrs, Volume= 6,918 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-2: Grove Street





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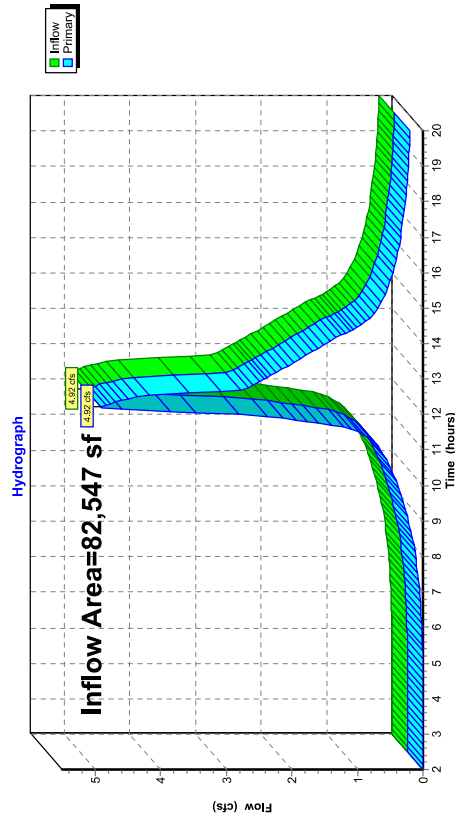
Proposed Conditions  
Type III 24-hr 50-Year Rainfall=7.42"  
Printed 10/22/2020  
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Summary for Link POA-3: Arlington High School

Inflow Area = 82,547 sf, 83.09% Impervious, Inflow Depth > 5.57" for 50-Year event  
Inflow = 4.92 cfs @ 12.22 hrs, Volume= 38,333 cf  
Primary = 4.92 cfs @ 12.22 hrs, Volume= 38,333 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School



Arlington-PR

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Proposed Conditions  
Type III 24-hr 100-Year Rainfall=8.89"  
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Time span=2.00-20.00 hrs, dt=0.05 hrs, 361 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>SubcatchmentDA-1: DA-1</b>	Runoff Area=164,858 sf 94.89% Impervious Runoff Depth>7.89" Tc=6.0 min CN=95 Runoff=31.95 cfs 108,432 cf
<b>SubcatchmentDA-2: DA-2</b>	Runoff Area=14,034 sf 87.20% Impervious Runoff Depth>7.30" Tc=6.0 min CN=90 Runoff=2.63 cfs 8,535 cf
<b>SubcatchmentDA-3a: DA-3a</b>	Runoff Area=72,161 sf 84.29% Impervious Runoff Depth>7.18" Tc=6.0 min CN=89 Runoff=13.41 cfs 43,163 cf
<b>SubcatchmentDA-3b: DA-3b</b>	Runoff Area=10,386 sf 74.79% Impervious Runoff Depth>6.46" Tc=6.0 min CN=83 Runoff=1.80 cfs 5,588 cf
<b>Pond DET-1: Underground Detention</b>	Peak Elev=63.73' Storage=12,784 cf Inflow=13.41 cfs 43,163 cf Outflow=4.85 cfs 42,091 cf
<b>Link POA-1: Mill Brook</b>	Inflow=31.95 cfs 108,432 cf Primary=31.95 cfs 108,432 cf
<b>Link POA-2: Grove Street</b>	Inflow=2.63 cfs 8,535 cf Primary=2.63 cfs 8,535 cf
<b>Link POA-3: Arlington High School</b>	Inflow=6.01 cfs 47,679 cf Primary=6.01 cfs 47,679 cf

Total Runoff Area = 261,439 sf Runoff Volume = 165,717 cf Average Runoff Depth = 7.61"  
9.24% Pervious = 24,169 sf 90.76% Impervious = 237,270 sf

**Arlington-PR**

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Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.89"

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**Summary for Subcatchment DA-1: DA-1**

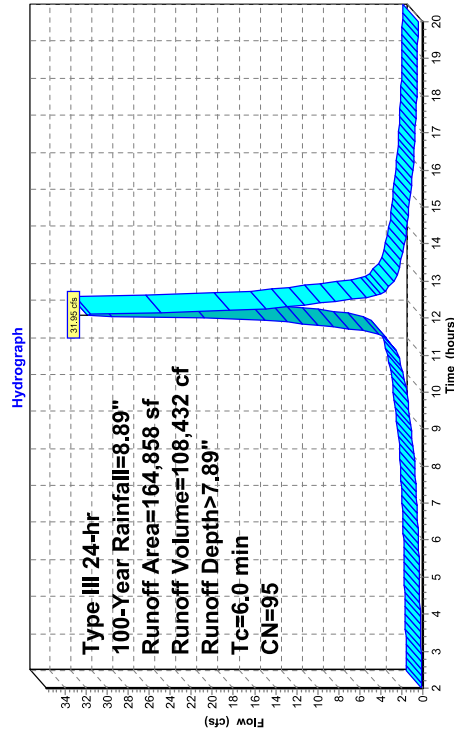
Runoff = 31.95 cfs @ 12.09 hrs, Volume= 108,432 cf, Depth&gt; 7.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
8,417	39	>75% Grass cover, Good, HSG A
156,441	98	Paved parking, HSG A
164,858	95	Weighted Average
8,417	5.11%	Pervious Area
156,441	94.89%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-1: DA-1****Arlington-PR**

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Proposed Conditions

Type III 24-hr 100-Year Rainfall=8.89"

Printed 10/22/2020

**Summary for Subcatchment DA-2: DA-2**

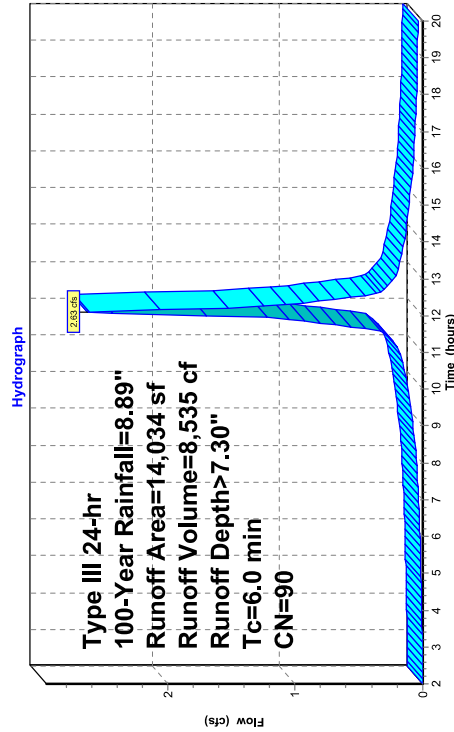
Runoff = 2.63 cfs @ 12.09 hrs, Volume= 8,535 cf, Depth&gt; 7.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
1,796	39	>75% Grass cover, Good, HSG A
12,238	98	Paved parking, HSG A
14,034	90	Weighted Average
1,796	12.80%	Pervious Area
12,238	87.20%	Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

**Subcatchment DA-2: DA-2**

### Summary for Subcatchment DA-3a: DA-3a

Runoff = 13.41 cfs @ 12.09 hrs, Volume= 43,163 cf, Depth> 7.18"

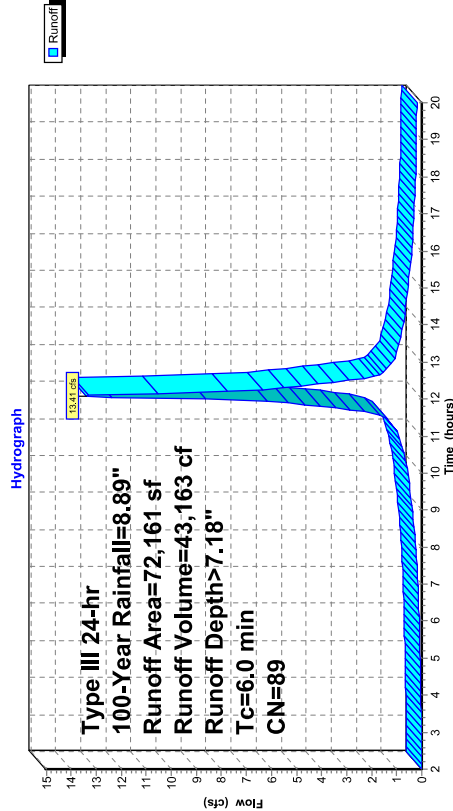
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
11,338	39	>75% Grass cover, Good, HSG A
60,823	98	Paved parking, HSG A
72,161	89	Weighted Average
11,338		15.71% Pervious Area
60,823		84.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

### Subcatchment DA-3a: DA-3a



### Summary for Subcatchment DA-3b: DA-3b

Runoff = 1.80 cfs @ 12.09 hrs, Volume= 5,588 cf, Depth> 6.46"

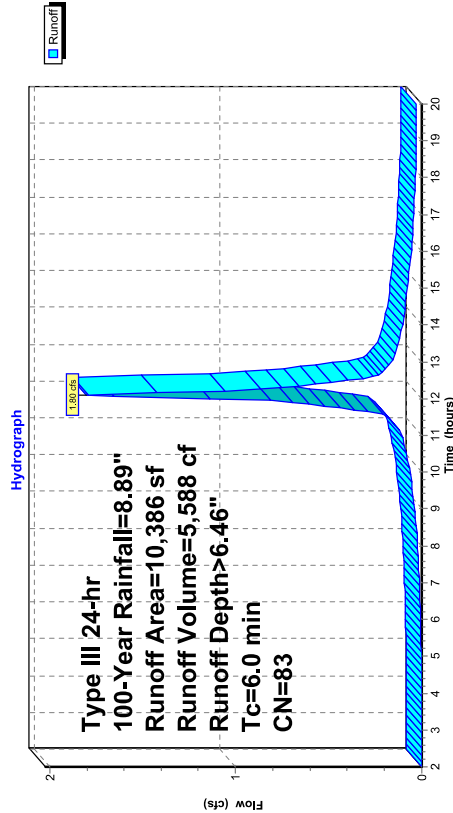
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.89"

Area (sf)	CN	Description
2,618	39	>75% Grass cover, Good, HSG A
7,768	98	Paved parking, HSG A
10,386	83	Weighted Average
2,618		25.21% Pervious Area
7,768		74.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					

Direct Entry,

### Subcatchment DA-3b: DA-3b



**Summary for Pond DET-1: Underground Detention System**

Inflow Area = 72,161 sf, 84.29% Impervious, Inflow Depth > 7.18" for 100-Year event  
 Inflow = 13.41 cfs @ 12.09 hrs, Volume= 43,163 cf  
 Outflow = 4.85 cfs @ 12.35 hrs, Volume= 42,091 cf, Atten= 64%, Lag= 15.8 min  
 Primary = 4.85 cfs @ 12.35 hrs, Volume= 42,091 cf

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 63.73' @ 12.35 hrs Storage= 12,784 cf

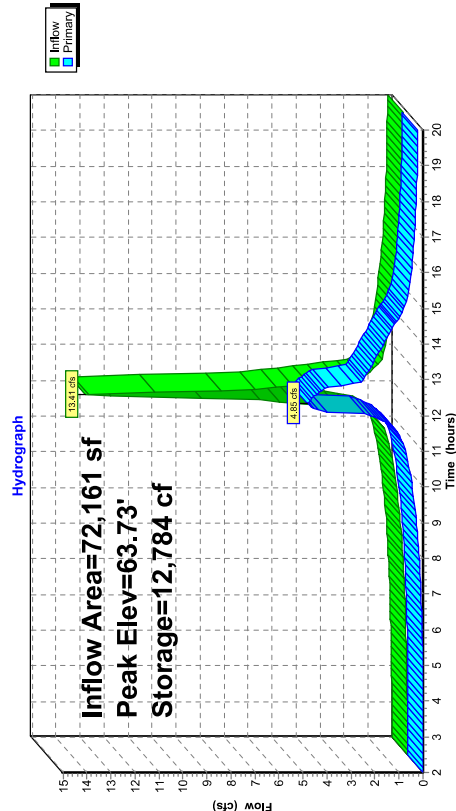
Plug-Flow detention time= 50.7 min calculated for 41,975 cf (97% of inflow)  
 Center-of-Mass det. time= 40.5 min ( 787.6 - 747.1 )

Volume	Invert	Avail. Storage	Storage Description
#1	60.60'	7,672 cf	<b>Oldcastle StormCapture SC1 3' x 24'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 32.0 cf perimeter wall
#2	60.60'	5,112 cf	<b>Oldcastle StormCapture SC1 3' x 16'</b> Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 4 Rows adjusted for 24.0 cf perimeter wall
		12,784 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	60.60'	<b>12.0" Round Culvert</b> L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 60.60' / 59.40' S= 0.0120 /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	60.60'	<b>6.0" Vert. Orifice/Grate X 2.00</b> C= 0.600
#3	Device 1	62.60'	Limited to weir flow at low heads <b>4.0' long x 0.5' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=4.84 cfs @ 12.35 hrs HW=63.73' (Free Discharge)  
 1=Culvert (Inlet Controls 4.84 cfs @ 6.17 fps)  
 2=Orifice/Grate (Passes < 3.21 cfs potential flow)  
 3=Broad-Crested Rectangular Weir (Passes < 16.02 cfs potential flow)

**Pond DET-1: Underground Detention System**

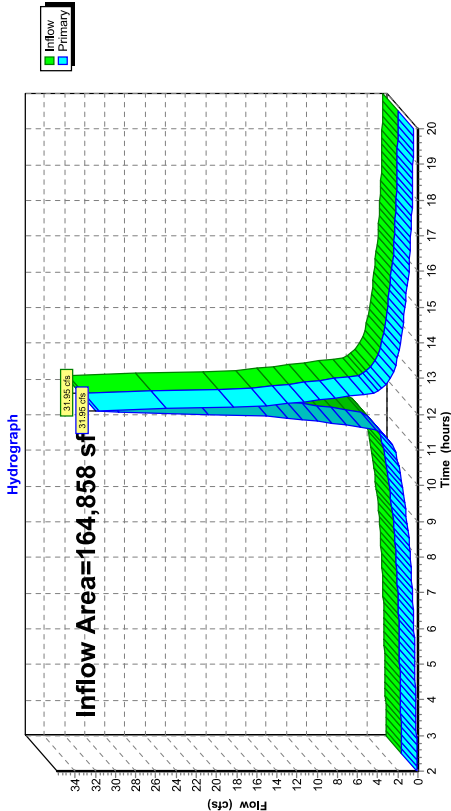


Summary for Link POA-1: Mill Brook

Inflow Area = 164,858 sf, 94.89% Impervious, Inflow Depth > 7.89" for 100-Year event  
Inflow = 31.95 cfs @ 12.09 hrs, Volume= 108,432 cf  
Primary = 31.95 cfs @ 12.09 hrs, Volume= 108,432 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-1: Mill Brook

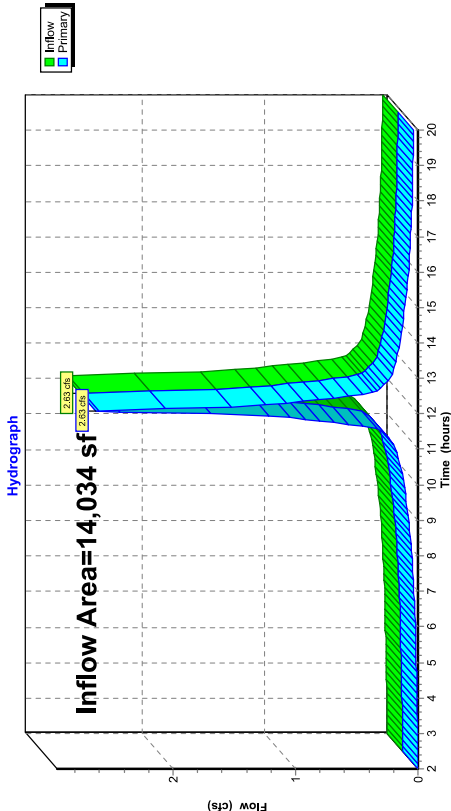


Summary for Link POA-2: Grove Street

Inflow Area = 14,034 sf, 87.20% Impervious, Inflow Depth > 7.30" for 100-Year event  
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 8,535 cf  
Primary = 2.63 cfs @ 12.09 hrs, Volume= 8,535 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

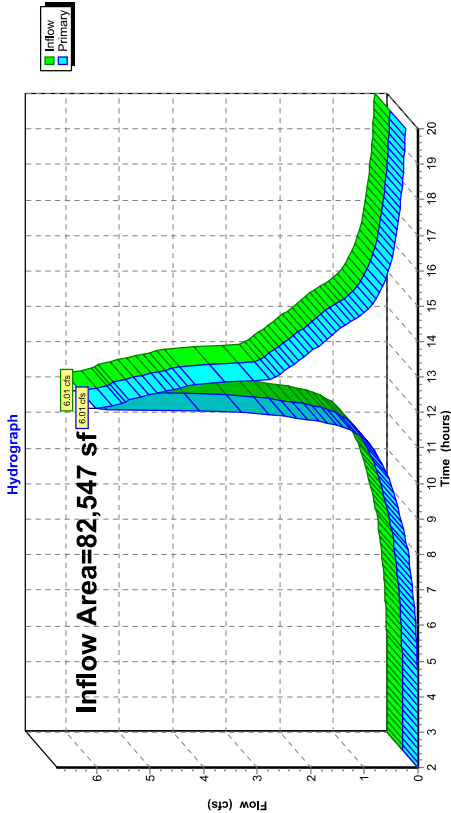
Link POA-2: Grove Street



Summary for Link POA-3: Arlington High School

Inflow Area = 82,547 sf, 83.09% Impervious, Inflow Depth > 6.93" for 100-Year event  
Inflow = 6.01 cfs @ 12.12 hrs, Volume= 47,679 cf  
Primary = 6.01 cfs @ 12.12 hrs, Volume= 47,679 cf, Atten= 0%, Lag= 0.0 min  
Primary outflow = Inflow, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs

Link POA-3: Arlington High School





# APPENDIX C

**Project :** Arlington DPW  
**Location:** 51 Grove Street, Arlington, MA  
**Prepared by:** Elena Compter

**Purpose:** To calculate the water quality flow rate (WQF) over a given site area.

**References:** MassDEP Wetlands Program/Unites States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

**Given**

Structure Name	Impervious (Acres)	A (miles <sup>2</sup> )	Tc (min)	Tc (hr)	WQV (in)
SWTU-1	0.906	0.0014158	6	0.1	1
SWTU-2	0.030	4.721E-05	6	0.1	1
SWTU-3	0.406	0.0006346	6	0.1	1
SWTU-4	0.570	0.0008904	6	0.1	1
SWTU-5	0.190	0.0002974	6	0.1	1

**Procedure:** Determine unit peak discharge( $q_u$ ) using Figure 1 or 2 contained the reference material. Using the  $T_c$ , read the unit peak disharge ( $q_u$ ) from Table in Figure 2.  $q_u$  is expressed in the following units: cfs/mi<sup>2</sup>/watershed inches (csm/in).

Structure Name	Impervious (Acres)
SWTU-1	774
SWTU-2	774
SWTU-3	774
SWTU-4	774
SWTU-5	774

1. Compute Q Rate using the following equation:

$$Q = (q_u) (A) (WQV)$$

where:  $q$  = flow rate associated with the first 1" of runoff  
 $q_u$  = the unit peak discharge, in csm/in  
 $A$  = impervious surface drainage area (in square miles)  
 $WQV$  = water quality volume in watershed inches (1.0" in this case)

Structure Name	Q (cfs)
SWTU-1	1.096
SWTU-2	0.037
SWTU-3	0.491
SWTU-4	0.689

SWTU-5	0.230
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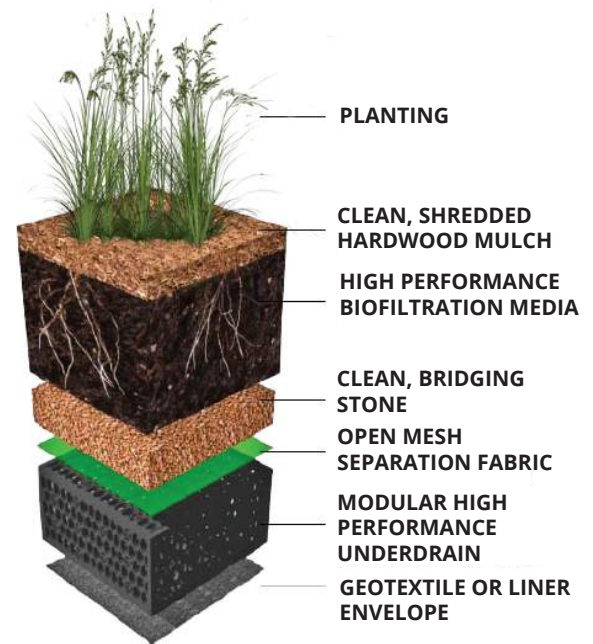
# FOCALPOINT

## BIOFILTRATION SYSTEM

STORMWATER MANAGEMENT

### HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM FOR FILTRATION OF STORMWATER

FocalPoint is an ultra-efficient, modular biofiltration system that treats and drains large volumes of stormwater runoff in a small footprint to meet post-construction stormwater treatment requirements. The biofiltration system utilizes the physical, chemical and biological mechanisms of a soil, plant and microbe complex to remove pollutants typically found in urban stormwater runoff. The system can be installed along the edge of a roadway behind curb lines, in landscaped stormwater basins and can be incorporated into an urban green infrastructure streetscapes. Infiltration flow rates for the system's standard media exceed 100" per hour. It is a complete, integrated system with a demanding specification that ensures functionality, performance and maintainability.



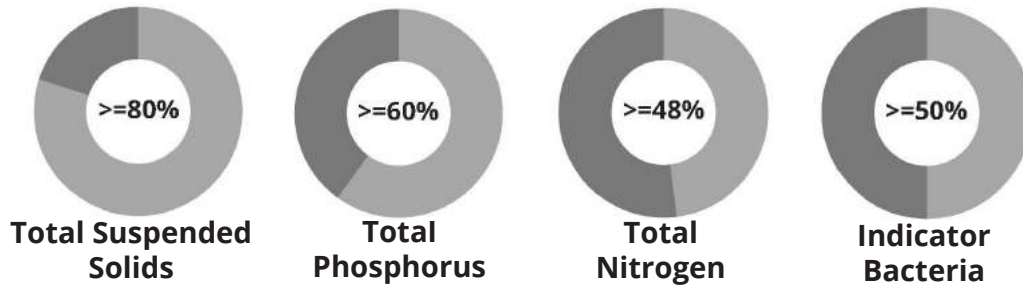
#### ADVANTAGES:

- Gain usable square footage
- Reduce material requirements and cost
- Improve property aesthetic and value
- 100"+ per hour infiltration rate
- Treat the same amount of water in <10% of the area required for traditional bioretention
- ACF provides 1st year of maintenance on system



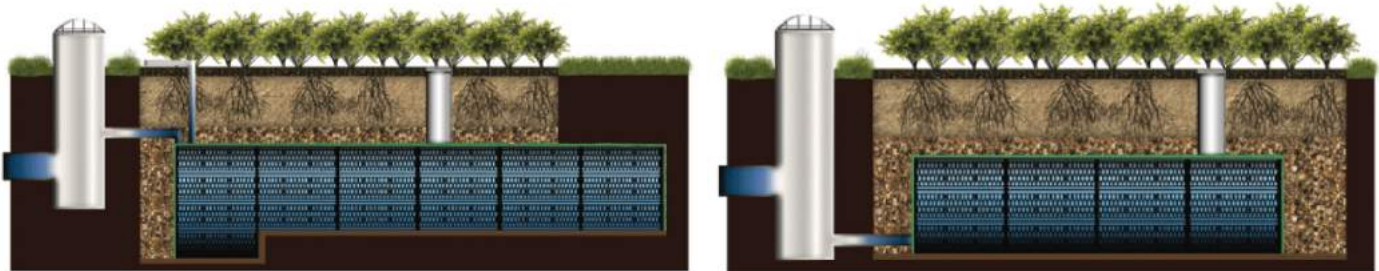
## POLLUTANT REMOVAL

FocalPoint achieves pollutant removal rates consistent with traditional bioretention, and the option of increased removal characteristics for specific pollutant targets. The system is 3rd party field tested under TAPE (Technology Assessment Protocol – Ecology), independently field tested by the North Carolina State University, and has numerous agencies' approvals that meet state water quality standards for post construction BMPs.

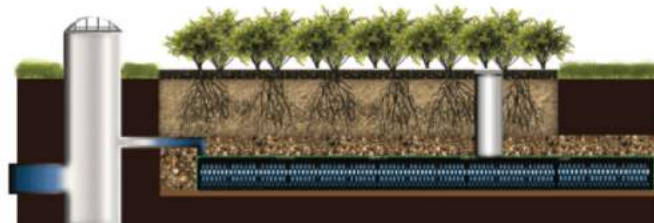


## MODULAR UNDERDRAIN

FocalPoint's modular open cell underdrain system, unlike traditional underdrains, not only supports the flow rate of the media, but can be expanded beyond the footprint of the media bed to provide unlimited underground detention, infiltration and/or storage for water reuse. This can help meet channel protection, infiltration and flood control requirements.



\*R-Tank underdrain can be extended beyond FocalPoint footprint as shown above\*



## ACCESSORY PRODUCTS



**Beehive Overflow Filter Riser**  
for collection of gross solids during major storm events



**Rain Guardian Turret**  
for curblane pretreatment and energy dissipation



LET'S GET IT DONE

800.448.3636  
acfenvironmental.com

## INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: Upper Site Treatment Train

TSS Removal Calculation Worksheet	B	C	D	E	F
	BMP <sup>1</sup>	TSS Removal Rate <sup>1</sup>	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
	Street Sweeping - 5%	0.05	1.00	0.05	0.95
	Deep Sump and Hooded Catch Basin	0.25	0.95	0.24	0.71
	Oil Grit Separator	0.25	0.71	0.18	0.53
		0.00	0.53	0.00	0.53
		0.00	0.53	0.00	0.53

Total TSS Removal =

47%

Separate Form Needs to  
be Completed for Each  
Outlet or BMP Train

Project: Arlington DPW  
Prepared By: Elena Compter  
Date: 10/20/2020

\*Equals remaining load from previous BMP (E)  
which enters the BMP



## INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location: 

TSS Removal Calculation Worksheet	B	C	D	E	F
	BMP <sup>1</sup>	TSS Removal Rate <sup>1</sup>	Starting TSS Load*	Amount Removed (C*D)	Remaining Load (D-E)
	Street Sweeping - 5%	0.05	1.00	0.05	0.95
	Sediment Forebay	0.25	0.95	0.24	0.71
	Rain Garden	0.90	0.71	0.64	0.07
		0.00	0.07	0.00	0.07
		0.00	0.07	0.00	0.07

Total TSS Removal =

93%

Separate Form Needs to  
be Completed for Each  
Outlet or BMP Train

Project:   
 Prepared By:   
 Date:

\*Equals remaining load from previous BMP (E)  
which enters the BMP

# APPENDIX D

Because several hazardous fluids, including, but not limited to, waste oil, anti-freeze, hydraulic oil, and motor oil is proposed for storage on the site, a Spill Prevention Control and Countermeasures (SPCC) Plan will be required for the Site in accordance with EPA requirements. This plan will be provided following construction and prior to use of the facility. To meet the requirements of Standard 4 of the Massachusetts Stormwater Handbook, this Long-Term Pollution Prevention Plan is provided to identify the proper procedures of practices for source control and pollution prevention.

### **STORAGE AND HANDLING OF OIL AND OTHER HAZARDOUS MATERIALS**

All oil products and other hazardous materials stored in quantities greater than or equal to 55 gallons will be stored in double walled tanks or provided with other means of secondary containment. The SPCC Plan will detail the spill containment and response actions that will be implemented in the event of a spill.

The handling/use of oil and vehicle maintenance fluids will be conducted in the vehicle maintenance and/or shop area of the facility, which will be equipped with floor drains connected to an oil/gas/sand separator prior to discharge to the sewer.

### **VEHICLE STORAGE AND WASHING**

Vehicles will be stored within the building or under the building canopy. Areas under cover or out in the open will be monitored for any potential contamination to the infiltration system or resource areas. Vehicle washing will be performed in the vehicle wash bay of the facility. Wash water will be collected by floor drains located within the wash bay and will be discharged to the sewer.

### **OPERATION AND MAINTENANCE OF STORMWATER CONTROL STRUCTURES**

Included in this Appendix is the Operation and Maintenance plan for this site, which includes street sweeping of the paved areas and periodic removal of sediment from catch basins and other stormwater structures. The Department of Public Works will be responsible for the implementation of the plan.

### **MATERIAL STORAGE AREA**

The material storage areas will be inspected and maintained, as required, to prevent erosion or any potential contamination to the infiltration system or resource areas.

### **SALT STORAGE AND LOADING**

Salt will be stored inside the proposed salt shed. All salt deliveries to the site will be unloaded directly inside the salt shed to eliminate salt spills. A salt loading ramp will be constructed at the entrance to the salt shed to give an elevated platform during the salt loading. The salt loading ramp will help to eliminate spills during loading of salt into DPW vehicles. During storm events, the operator of the front end loader, used to load the vehicles, will periodically inspect the truck loading area to see if any salt product was spilled during loading operations. In the event excess salt product is observed, the operator shall immediately collect the excess product and transport it back into the salt shed.

### LANDSCAPING

The landscaped areas will be maintained by the Department of Public Works. No fertilizers will be stored or used on site.

### PET WASTE MANAGEMENT

It is not expected that pets will be accessing the facility; therefore, it is not necessary to design to manage pet waste.

### WASTEWATER SYSTEM

Wastewater will be generated in the building. The building will be tied into the Town's sewer system, so there will be no onsite septic facilities.

### DE-ICING & SNOW DISPOSAL

The DPW intends to utilize salt and sand to treat the paved surfaces of the driveways and main circulation areas during snow and ice events. Salt will be stored inside the proposed salt shed on site. Snow storage will consist of pushing snow into grassed areas along the perimeter of the property.

### GOOD HOUSEKEEPING MEASURES

The DPW will implement good housekeeping measures to prevent any pollutants generated by the activities on site from entering surface waters and/or groundwater. These measures will include developing and following SPCC plan, maintaining stormwater BMP in accordance with O&M Plan to ensure optimal operation of stormwater BMPs, and following requirements of LTPPP plan as outline above.

Construction Period Pollution Prevention and  
Erosion and Sedimentation Control Plan

Department of Public Works  
51 Grove Street, Arlington MA

Inspection Form

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

YES	NO	DOES NOT APPLY	ITEM
			Do any erosion/siltation control measures require repair or clean out to maintain adequate function?
			Is there any evidence that sediment is leaving the site and entering the wetlands?
			Are any temporary soil stockpiles or construction materials located in non-approved areas?
			Are on-site construction traffic routes, parking, and storage of equipment and supplies located in areas not specifically designed for them?

Specific location, current weather conditions, and action to be taken:

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---

---

Other Comments:

---

---

Pending the actions noted above I certify that the site is in compliance with the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## SECTION I – PURPOSE/INTENT

The purpose of this document is to provide for the health, safety, and general welfare of the citizens of Arlington, Massachusetts through the regulation of non-stormwater discharges into existing outstanding resource areas near the proposed public works facility site to the maximum extent practicable, as required by federal and state law. This document establishes methods for controlling the introduction of pollutants into existing outstanding resource areas to comply with requirements of the National Pollutant Discharge Elimination System (NPDES) permit process.

## SECTION II - DEFINITIONS

For the purposes of this statement, the following shall mean:

*Best Management Practices (BMPs)*: Schedules of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to stormwater, receiving waters, or stormwater conveyance systems. BMPs also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

*Clean Water Act*: The federal Water Pollution Control Act (33 U.S.C § 1251 et seq.), and any subsequent amendments thereto.

*Construction Activity*: Activities subject to the Massachusetts Erosion and Sedimentation Control Act or NPDES Construction Permits. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

*Hazardous Materials*: Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

*Illegal Connection*: An illegal connection is defined as either of the following:

- a. Any pipe, open channel, drain or conveyance, whether on the surface or subsurface, which allows an illicit discharge to enter the outstanding resource area including but not limited to any conveyances which allow any non-stormwater discharge including sewage, process wastewater, and wash water, regardless of whether said drain or connection has been previously allowed, permitted, or approved by an authorized enforcement agency; or
- b. Any pipe, open channel, drain or conveyance connected to the Town of Arlington storm water treatment system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

*Illicit Discharge*: Any direct or indirect non-stormwater discharge to the Town of Arlington stormwater treatment system, except as exempted in Section II of this ordinance.



*Industrial Activity:* Activities subject to NPDES Industrial Permits as defined in 40CFR, Section 122.26 (b) (14).

*National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit:* A permit issued by MassDEP under authority delegated pursuant to 33 USC § 1342 (b) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

*Town of Arlington Stormwater Treatment System:* Any facility, owned or maintained by the town, designed or used for collecting and/or conveying stormwater, including but not limited to roads with drainage systems, Town of Arlington streets, curbs, gutters, inlets, catch basins, piped storm drains, pumping facilities, infiltration, retention and detention basins, natural and man-made or altered drainage channels, reservoirs, and other drainage structures.

*Non-Stormwater Discharge:* Any discharge to the storm drain system that is not composed entirely of stormwater.

*Person:* Any individual, association, organization, partnership, firm, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, city, county or other political subdivision of the State, interstate body, or any other legal entity.

*Pollutant:* Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; petroleum hydrocarbons; automotive fluids; cooking grease; detergents (biodegradable or otherwise); degreasers; cleaning chemicals; non-hazardous liquid and solid wastes; refuse, rubbish, garbage, litter, or other discarded or abandoned objects and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; liquid and solid wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; concrete and cement; and noxious or offensive matter of any kind.

*Pollution:* Contamination or other alteration of any water's physical, chemical, or biological properties by addition of any constituent including but not limited to a change in temperature, taste, color, turbidity, or odor of such waters, or the discharge of any liquid, gaseous, solid, radioactive, or other substance into any such waters as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety, welfare, or environment, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish or other aquatic life.

*Premises:* Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

*Stormwater:* Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation and resulting from such precipitation.

*Wastewater:* Any water or other liquid discharged from a facility, that has been used, as for washing, flushing, or in a manufacturing process, and so contains waste products.

### SECTION III - PROHIBITIONS

#### *Prohibition of Illicit Discharges:*

No person shall throw, drain, or otherwise discharge, cause or allow others under its control to throw, drain, or otherwise discharge into the Town of Arlington stormwater treatment system or watercourses any materials, including but not limited to, any pollutants or waters containing any pollutants, other than stormwater. The commencement, conduct, or continuance of any illicit discharge to the storm drain system is prohibited except as described as follows:

1. Water line flushing performed by a government agency, other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, natural riparian habitat or wetland flows, and any other water source not containing pollutants;
2. Discharges or flows from firefighting, and other discharges specified in writing by the Town of Arlington as being necessary to protect public health and safety;
3. Dye testing is an allowable discharge, but requires a verbal notification to the Town of Arlington prior to the time of the test;
4. Any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or order and other applicable laws and regulations, and provided that written approval has been granted for a discharge to the Town of Arlington stormwater treatment system.

### SECTION IV – INDUSTRIAL OR CONSTRUCTION ACTIVITY DISCHARGES

Any person subject to an industrial or construction activity NPDES stormwater discharge permit shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the Town of Arlington Department of Public Works prior to allowing discharges to the Arlington stormwater treatment system.

### SECTION V – NOTIFICATION OF SPILLS AND ACCIDENTAL DISCHARGES

Notwithstanding other requirements of law, as soon as any person responsible for a facility, activity or operation, or responsible for emergency response for a facility, activity or operation has information of any known or suspected release of pollutants or non-stormwater discharges from that facility, activity, or operation which are resulting or may result in illicit discharges or pollutants discharging into stormwater, the Town of Arlington stormwater treatment system, State Waters, or Waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release so as to minimize the effects of the discharge. In the event of such a release of hazardous materials, said person shall immediately notify emergency response agencies

of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the Town of Arlington Department of Public Works in person or by phone no later than the next business day, including the nature, quantity and time of occurrence of the discharge. Notifications in person or by phone shall be confirmed by written notice, via certified mail return receipt requested addressed to the Town of Arlington Department of Public Works within three (3) business days of the initial notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three years.

IN WITNESS WHEREOF the parties hereto have executed copies of this Agreement on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

\_\_\_\_\_  
Michael Rademacher, Director  
Department of Public Works

## Operation and Maintenance Plan

### Arlington Public Works Facility

## SECTION 1 – INTRODUCTION

The following document has been written to comply with the stormwater guidelines set forth by the Massachusetts Department of Environmental Protection (MassDEP). The intent of these guidelines is to encourage Low Impact Development techniques to improve the quality of the stormwater runoff. These techniques, also known as Best Management Practices (BMPs) collect, store, and treat the runoff before discharging to adjacent environmental resources.

## SECTION 2 - PURPOSE

This Operation and Maintenance Plan (O&M Plan) is intended to provide a mechanism for the consistent inspection and maintenance of each BMP installed on the project site. Included in this O&M Plan is a description of each BMP type and an inspection form for each BMP. The Town of Arlington is the owner and operator of the system and is responsible for its upkeep and maintenance. This work will be funded on an annual basis through the Town's operating budget. The estimated budget to maintain these BMPs utilizing the Department of Public Works workforce and equipment is approximately \$15,000 per year. This budget assumes that Town equipment will be utilized, and no additional equipment rental is required.

In the event the Town sells the property, it is the Town's responsibility to transfer this plan, as well as the past three years of operation and maintenance records, to the new property owner.

## SECTION 3 – BMP DESCRIPTION AND LOCATIONS

### 3.1 *Street Sweeping*

Street sweeping consists of using a street sweeping machine to clean impervious areas of accumulated sediment, debris, and trash at the parking areas surrounding the public works facility.

### 3.2 *Deep Sump Catch Basins*

Deep sump catch basins will be located throughout the site and used as pre-treatment before entering the hydrodynamic separators. The deep sump catch basins are collection systems that are designed to remove trash, debris, and coarse sediment from the stormwater runoff.

### 3.3 *Stormwater Treatment Structures*

There are four stormwater treatment structures on site. These structures are hydrodynamic separators, designed to slow stormwater down and allow oil and debris to rise and sediment to settle out.

## SECTION 4 – INSPECTION, MAINTENANCE, AND SCHEDULE

### 4.1 *Street Sweeping*

.....

Street sweeping shall be performed on the proposed parking lot and driveway areas on a monthly average, primarily in the spring and fall. Street sweeping shall be performed using an appropriate street sweeping machine.

In the event of contamination by a spill or other means, all street sweeping cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000 and handled as hazardous waste.

In the absence of evidence of contamination, street sweeping cleanings may be taken to a landfill or other facility permitted by MassDEP to accept Solid Waste without any prior approval by MassDEP. Please note that current MassDEP regulations prevent landfills from accepting materials that contain free-draining liquids.

#### 4.2 *Deep Sump Catch Basins*

Inspect and/or clean catch basins at least four times per year and at the end of foliage and snow removal seasons. Sediments must be removed whenever the depth of deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin. Each catch basin should be cleaned a minimum of four times per year regardless of the amount of sediment in the basin. They shall be cleaned using clamshell buckets or vacuum trucks.

In the event of contamination by a spill or other means, all cleanings must be evaluated in accordance with the Hazardous Waste Regulations, 310 CMR 30.000 and handled as hazardous waste.

In the absence of evidence of contamination, catch basin cleanings may be taken to a landfill or other facility permitted by MassDEP to accept Solid Waste without any prior approval by MassDEP. Please note that current MassDEP regulations prevent landfills from accepting materials that contain free-draining liquids.

#### 4.3 *Knockdown Area*

The catch basin in the center of knockdown area shall be visually inspected on bi-weekly basis for sediment accumulation. Sediment must be removed according to procedure outlined in Section 4.2 of this report whenever the depth of sediment reaches high point between the bottom of the sump and invert of the pipe.

#### 4.4 *Stormwater Treatment Structures*

Stormwater treatment structures shall be inspected every six months for the first year. Following the first year, the structures can be inspected a minimum of once per year or as first year data indicates. After a hazardous spill, structures shall be inspected immediately. The structures shall be cleaned a minimum of once per year or when the sediment depth is 15% of its capacity. Polluted water, sediments, and debris should be disposed of in accordance with local, state, and federal regulations.



#### 4.6 *Inspections and Record Keeping*

- An inspection form should be filled out every time maintenance work is performed.
- A binder should be kept at the Public Works Facility that contains all the completed inspection forms and any other related materials.
- A review of all Operation & Maintenance actions should take place annually to ensure that these Stormwater BMPs are being taken care of in the manner illustrated in this Operation & Maintenance Plan.
- All operation and maintenance log forms for the last three years, at a minimum, shall be kept on site at the Public Works Facility.

The inspection and maintenance schedule may be refined in the future based on the findings and results of this operation and maintenance program or policy.

### Street Sweeping

Frequency: Monthly, primarily in the spring and fall.

Location: Parking Lots and Driveways

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Actions Taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Instructions: Sweep parking lots and driveways using street sweeping machine. All trash, debris, and sediments should be disposed of in accordance with local, state, and federal regulations.

### Deep Sump Catch Basins

Frequency: Inspect and clean deep sump catch basins at least four times per year and at the end of foliage and snow removal seasons.

Structure Number: \_\_\_\_\_

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Actions Taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Instructions: Clean units four times per year or whenever the depth of the deposits is greater than or equal to one half the depth from the bottom of the invert to the lowest pipe in the structure.

### Stormwater Treatment Structure

Frequency: Inspect every six months for the first year and as necessary following the first year. After a hazardous spill, structures shall be inspected immediately.

Structure Number: \_\_\_\_\_

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Actions Taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Instructions: Clean unit when the sediment depth is 15% of its capacity. Dispose of sediment and debris in accordance with local, state, and federal laws.

### Knockdown Area

Frequency: Inspect catch basin in the center of knockdown area at least bi-weekly or more frequently as necessary based on the use of the knockdown area.

Structure Number: \_\_\_\_\_

Inspected By: \_\_\_\_\_ Date: \_\_\_\_\_

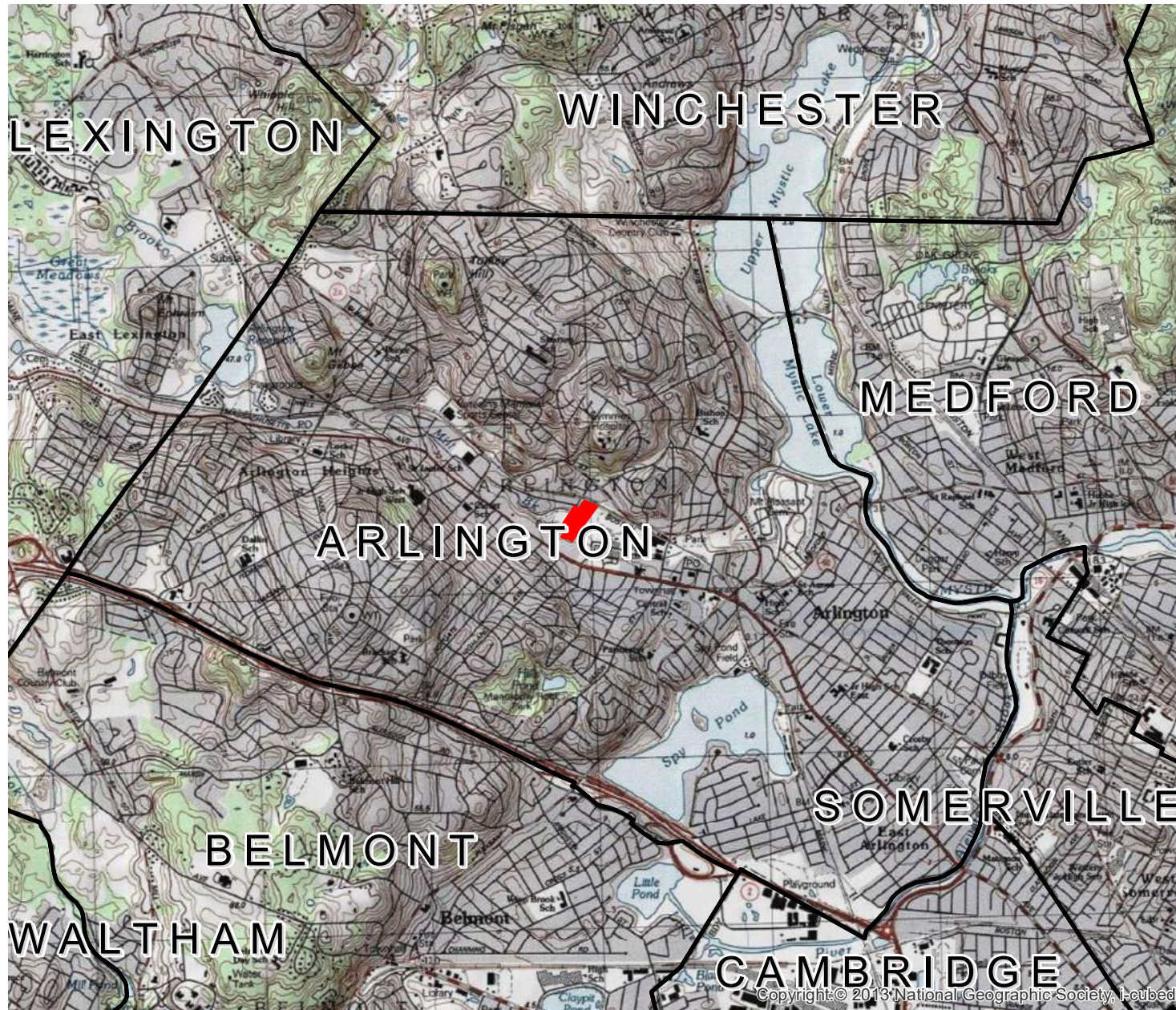
Observations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Actions Taken: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Instructions: Clean catch basin at least four times per year or whenever the depth of the deposits is greater than or equal to one half the depth from the bottom of the invert to the lowest pipe in the structure.

## Appendix D





Legend

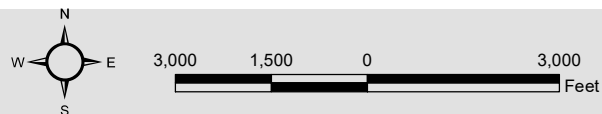
Work Area

FIGURE 1

DPW Facility  
Arlington, MA

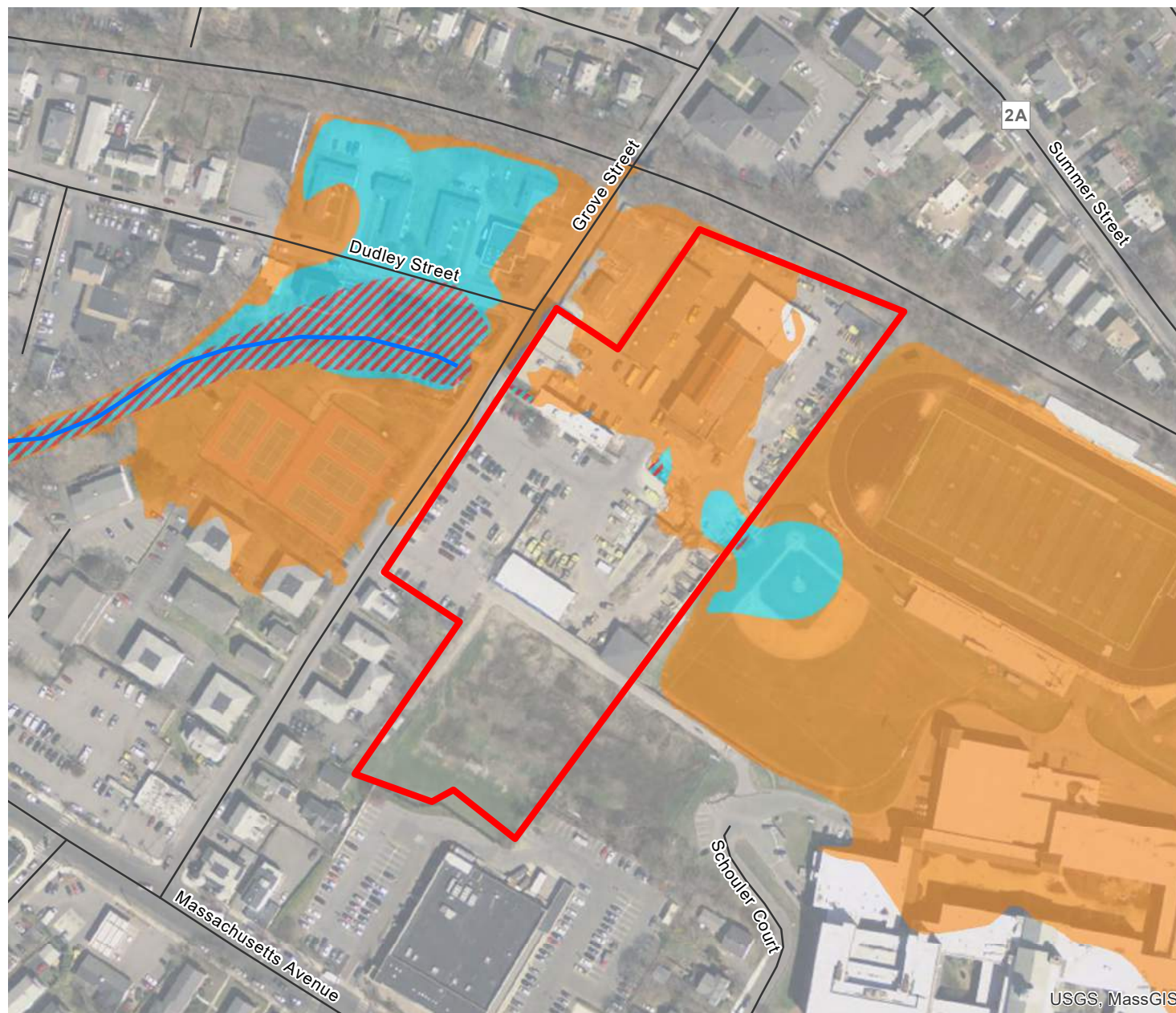
Locus Map

Weston & Sampson



Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs





### Legend

- Work Area
- Perennial Stream
- Intermittent Stream
- Marsh/Bog
- Wooded marsh
- Cranberry Bog
- Salt Marsh
- Open Water
- Reservoir (with PWSID)
- Tidal Flats
- Beach/Dune
- ACECs**
- ACECs
- NHESP Habitats**
- NHESP Estimated Habitats of Rare Wildlife
- NHESP Priority Habitats of Rare Species
- \* NHESP Certified Vernal Pools
- \* NHESP Potential Vernal Pools
- FEMA National Flood Hazard Layer**
- Flood Zone Designations**
- A: 1% Annual Chance of Flooding, no BFE
- AE: 1% Annual Chance of Flooding, with BFE
- AE: Regulatory Floodway
- AH: 1% Annual Chance of 1-3ft Ponding, with BFE
- AO: 1% Annual Chance of 1-3ft Sheet Flow Flooding, with Depth
- VE: High Risk Coastal Area
- D: Possible But Undetermined Hazard
- X: 0.2% Annual Chance of Flooding
- X: Reduced Flood Risk due to Levee
- Area Not Included
- Area with no DFIRM - Paper FIRMs in Effect

### FIGURE 2

DPW Facility  
Arlington, MA

Environmental  
Resource Map

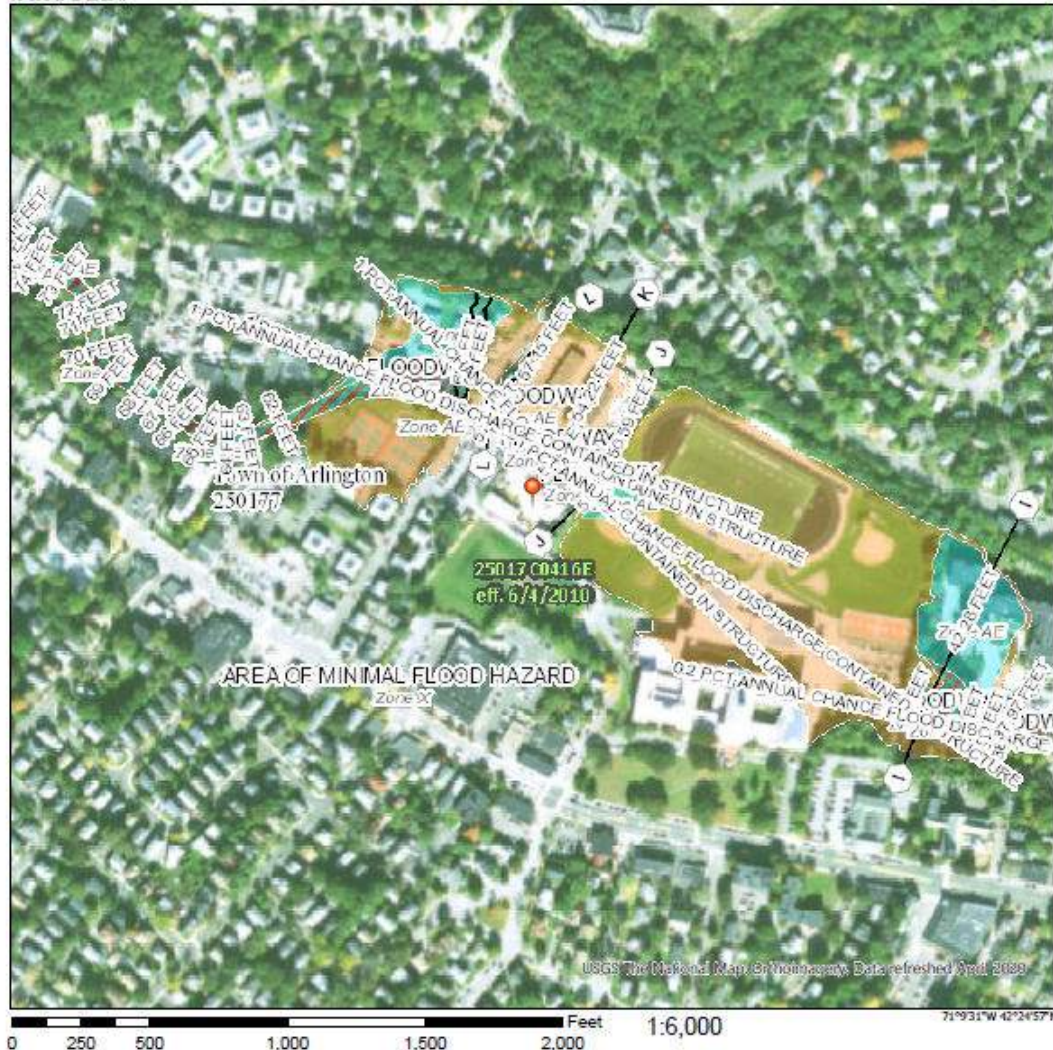
Weston & Sampson

Data Source: Office of Geographic and Environmental Information (MassGIS),  
Commonwealth of Massachusetts Executive Office of Environmental Affairs



# National Flood Hazard Layer FIRMMette

71°10'8"W 42°25'23"N



## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, XE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee. See Notes, Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Effective LOMRs
GENERAL STRUCTURES	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
OTHER FEATURES	Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance
MAP PANELS	Water Surface Elevation
	Coastal Transect
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Digital Data Available
	No Digital Data Available
	Unmapped
	The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/15/2020 at 12:27 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodified areas cannot be used for regulatory purposes.

FIGURE 3

DPW Facility  
Arlington, MA

FEMA Map

## Appendix E

## SECTION 01562

### DUST CONTROL

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

This section of the specification covers the control of dust via water, complete.

#### PART 2 - PRODUCTS

##### 2.01 WATER:

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

#### PART 3 - EXECUTION

##### 3.01 APPLICATION:

- A. Water may be sprinkler applied with equipment including a tank with gauge-equipped pressure pump and a nozzle-equipped spray bar.
- B. Water shall be dispersed through the nozzle under a minimum pressure of 20 pounds per square inch, gauge pressure.

END OF SECTION

\\\\wse03.local\\WSE\\Projects\\MA\\Arlington, MA\\DPW Facility\\Permitting\\Conservation\\NOI\\Appendix E Specs\\SECTION 01562-Dust Control.docx

## SECTION 01570

### ENVIRONMENTAL PROTECTION

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION:

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this section of the specifications apply to construction in and adjacent to wetlands, unless otherwise specifically stated.
- C. All work under this Contract shall be in accordance with the Conservation Commissions' Orders of Conditions as well as any conditional requirements applied, all of which are attached to Section 00890, PERMITS.
- D. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.

##### 1.02 SUBMITTALS:

- A. The Contractor shall submit for approval six sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands.

#### PART 2 - PRODUCTS

##### 2.01 SILT FENCE:

- A. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a mesh backing, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1-1/4-inches by 1-1/4-inches (Minimum Dimension) by 48-inches and shall be tapered. The bottom edge of the silt fence shall be buried as shown on the drawings.
- B. The silt fence shall be DOT Silt Fence PPDM3611, as manufactured by U.S. Silt & Site Supply/Getsco, Concord, NH, or approved equal.
- C. Silt fence properties:

<u>Physical Properties</u>	<u>Test Method</u>	<u>Minimum Value</u>
Grab Strength, lbs.	ASTM-D-4632	124
Grab Elongation, %	ASTM-D-4632	15

Mullen burst, psi	ASTM-D-3786	300
Puncture, lbs.	ASTM-D-4833	65
Trapezoidal Tear, lbs.	ASTM-D-4833	65
UV Resistance <sup>2</sup> , %3	ASTM-D-4355	80@500 hrs.
AOS, US Sieve No.	ASTM-D-4751	30
Flow Rate, gal/min/sq ft	ASTM-D-4491	10
Permittivity, (1/sec) gal/min/sq ft	ASTM-D-4491	0.05 sec <sup>-1</sup>

## 2.02 STRAW BALES:

- A. Straw bales shall consist of certified seed free stems of agricultural grain and cereal crops and shall be free of grasses and legumes. Standard bales shall be 14-inches high, 18- inches wide and 36- to 40-inches long tied with polypropylene twine and weigh within 5 percent of 7 lbs. per cubic ft.

## 2.03 CATCH BASIN PROTECTION:

- A. To trap sediment and to prevent sediment from clogging drainage systems, catch basin protection in the form of a siltation sack (Silt sack as manufactured by ACF Environmental, Inc. or approved equal) shall be provided as approved by the Engineer.

## 2.04 COMPOST FILTER TUBES:

- A. Silt socks shall be a tubular filter sock of mesh fabric. The fabric will have openings of between 1/8" to 1/4" diameter. The mesh material will either photo degrade within one year or be made of nylon with a life expectancy of 24 months. The sock shall be filled with a mix of composted leaf mulch, bark mulch and wood chips that have been composted for at least one year. The sock will have a minimum diameter of 12-inches.

# PART 3- EXECUTION

## 3.01 NOTIFICATION AND STOPPAGE OF WORK:

- A. The Engineer will notify the Contractor in writing of any non-compliance with the provisions of the Order of Conditions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Engineer until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

## 3.02 AREA OF CONSTRUCTION ACTIVITY:

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries



and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

### 3.03 PROTECTION OF WATER RESOURCES:

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

### 3.04 CONSTRUCTION IN AREAS DESIGNATED AS WETLANDS ON THE DRAWINGS:

- A. Insofar as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands or within 100-feet of wetland resource areas.
- B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.
- C. The elevations of areas designated as wetlands shall not be unduly disturbed by the Contractor's operations.

### 3.05 LOCATION OF STORAGE AREAS:

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled straw or line of straw wattles or compost filter tubes around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.
- C. There shall be no storage of equipment or materials in areas designated as wetlands.
- D. The Engineer may designate a particular area or areas where the Contractor may store materials used in his operations.

### 3.06 PROTECTION OF LANDSCAPE:

- A. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to

or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees which are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.

- B. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- C. Where, in the opinion of the Engineer, trees may possibly be defaced, bruised, injured, or otherwise damaged by the Contractor's equipment or by his blasting or other operations, the Engineer may require the Contractor to adequately protect such trees by placing boards, planks, poles or fencing around them. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230, CLEARING AND GRUBBING.
- D. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

### 3.07 CLEARING AND GRUBBING:

- A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Engineer. Removal of mature trees (4 inches or greater DBH) will not be allowed on temporary easements.
- B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Engineer.

### 3.08 DISCHARGE OF DEWATERING OPERATIONS:

- A. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

- B. The pumped water shall be filtered through filter fabric and baled straw, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

### 3.09 DUST CONTROL:

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01562, DUST CONTROL.
- B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

### 3.10 BALED STRAW:

- A. To trap sediment and to prevent sediment from clogging drainage systems, baled straw shall be used where shown on the drawings. Care shall be taken to keep the bales from breaking apart. The bales should be securely staked to prevent overturning, flotation, or displacement. All deposited sediment shall be removed periodically. Straw bales shall not be placed within a waterway during construction of the pipeline crossing.

### 3.11 ERECTION AND MAINTENANCE OF SILT FENCE:

- A. Where indicated on the drawings or where required by the Engineer, the Contractor shall erect and maintain a temporary silt fence. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.

### 3.12 CATCH BASIN PROTECTION:

- A. Catch basin protection shall be used for every catch basin, shown on the plans or as required by the Engineer, to trap sediment and prevent it from clogging drainage systems and entering wetlands. Siltation sacks shall be securely installed under the catch basin grate. Care shall be taken to keep the siltation sacks from breaking apart or clogging. All deposited sediment shall be removed periodically and at times prior to predicted precipitation to allow free drainage flow. Prior to working in areas where catch basins are to be protected, each catch basin sump shall be cleaned of all debris and protected. The Contractor shall properly dispose of all debris at no additional cost to the Owner.

### 3.13 COMPOST FILTER TUBES:

- A. The filter tubes will be staked in the ground using wooden stakes driven at 4-foot intervals. The wooden stakes will be placed at a minimum depth of 24-inches into the ground.

END OF SECTION

\\Wse03.local\WSE\Projects\MA\Arlington, MA\DPW Facility\Permitting\Conservation\NOI\Appendix E Specs\SECTION 01570 -  
Environmental Protection HIGGINS UPDATES.docx

## SECTION 01740

### CLEANING UP

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION:

The Contractor must employ at all times during the progress of its work adequate cleanup measures and safety precautions to prevent injuries to persons or damage to property. The Contractor shall immediately, upon request by the Engineer provide adequate material, equipment and labor to cleanup and make safe any and all areas deemed necessary by the Engineer.

#### PART 2 - PRODUCTS

Not applicable

#### PART 3 - EXECUTION

##### 3.01 DAILY CLEANUP:

- A. The Contractor shall clean up, at least daily, all refuse, rubbish, scrap and surplus material, debris and unneeded construction equipment resulting from the construction operations and sweep the area. The site of the work and the adjacent areas affected thereby shall at all times present a neat, orderly and workmanlike appearance.
- B. Upon written notification by the Engineer, the Contractor shall within 24 hours clean up those areas, which in the Engineer's opinion are in violation of this section and the above referenced sections of the specifications.
- C. If in the opinion of the Engineer, the referenced areas are not satisfactorily cleaned up, all other work on the project shall stop until the cleanup is satisfactory.

##### 3.02 MATERIAL OR DEBRIS IN DRAINAGE FACILITIES:

- A. Where material or debris has washed or flowed into or has been placed in existing watercourses, ditches, gutters, drains, pipes, structures, such material or debris shall be entirely removed and satisfactorily disposed of during progress of the work, and the ditches, channels, drains, pipes, structures, and work shall, upon completion of the work, be left in a clean and neat condition.

##### 3.03 REMOVAL OF TEMPORARY BUILDINGS, STRUCTURES AND EQUIPMENT:

- A. On or before completion of the work, the Contractor shall, unless otherwise specifically required or permitted in writing, tear down and remove all temporary buildings and structures it built; shall remove all temporary works, tools and machinery or other construction

equipment it furnished; shall remove all rubbish from any grounds which it has occupied; shall remove silt fences and hay bales used for trapping sediment; and shall leave the roads and all parts of the property and adjacent property affected by its operations in a neat and satisfactory condition.

3.04 RESTORATION OF DAMAGED PROPERTY:

- A. The Contractor shall restore or replace, when and as required, any property damaged by its work, equipment or employees, to a condition at least equal to that existing immediately prior to the beginning of operations. To this end the Contractor shall do as required all necessary highway or driveway, walk and landscaping work. Materials, equipment, and methods for such restoration shall be as approved by the Engineer.

3.05 FINAL CLEANUP:

- A. Before acceptance by the Owner, the Contractor shall perform a final cleanup to bring the construction site to its original or specified condition. This cleanup shall include removing all trash and debris off of the premises. Before acceptance, the Engineer shall approve the condition of the site.

END OF SECTION

\\\\Wse03.local\\WSE\\Projects\\MA\\Arlington, MA\\DPW Facility\\Permitting\\Conservation\\NOI\\Appendix E Specs\\SECTION 01740-Cleaning Up.docx



## Appendix F



## TOWN OF ARLINGTON

730 Massachusetts Ave.  
Arlington, MA 02476  
781-316-3012

### ARLINGTON CONSERVATION COMMISSION

#### Abutter Notification

#### Notification to Abutters Under the Massachusetts Wetlands Protection Act And Arlington Wetlands Protection Bylaw

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, and the Arlington Wetlands Protection Bylaw, you are hereby notified of the following:

The Conservation Commission will hold a virtual public meeting using Zoom, on Thursday the 5<sup>th</sup>, November, 2020, at 7:30pm in accordance with the provisions of the Mass. Wetlands Protection Act (M.G.L. Ch. 131, s. 40, as amended), the Town of Arlington Bylaws Article 8, Bylaw for Wetland Protection, and in accordance with the Governor's Order Suspending Certain Provisions of the Open Meeting Law, G. L. c. 30A, § 20 relating to the COVID-19 emergency, for a Notice of Intent from Weston & Sampson Engineers on behalf of the Town of Arlington, for a DPW Facility project at 51 Grove Street, within 100 feet of a wetland resource, 200 feet of a Riverfront and within a floodplain, on Assessor's Property Map/s #54-3, Lot/s #2.A. Please refer to the Commission's online meeting agenda for specific Zoom meeting access information.

A copy of the application and accompanying plans are available by request by contacting the Arlington Conservation Agent at 781-316-3012 or [esullivan@town.arlington.ma.us](mailto:esullivan@town.arlington.ma.us). For more information call the applicant at 978-532-1900 or the Arlington Conservation Commission at 781-316-3012, or the DEP Northeast Regional Office at 978-694-3200.

NOTE: Notice of the Public Hearing will be published at least five (5) business days in advance in *The Arlington Advocate* and will also be posted at least 48 hours in advance on the Arlington Town Hall website.

\*\*\*\*\*

The meeting information for your hearing is:

Date: Thursday, November 5<sup>th</sup> 2020

Time: 7:30pm

### **Affidavit of Service**

(Please return to Conservation Commission)

I, Alexandra Gaspar, being duly sworn, do hereby state as follows: on October 22<sup>nd</sup>, 2020, I mailed a “Notification to Abutters” in compliance with the second paragraph of Massachusetts General Laws, Chapter 131, s.40, the DEP Guide to Abutter Notification dated April 8, 1994, and the Arlington Wetlands Protection Bylaw, Title V, Article 8 of the Town of Arlington Bylaws in connection with the following matter:

*Improvements to the Arlington Department of Public Works facility.*

The form of the notification, and a list of the abutters to whom it was provided and their addresses, are attached to this Affidavit of Service.

Signed under the pains and penalties of perjury, this 22<sup>nd</sup> day of October.

Alexandra Gaspar  
Name



Office of the  
Board of Assessors  
Robbins Memorial Town Hall  
Arlington, MA 02476  
(781) 316-3050  
Assessors@town.arlington.ma.us

### **Abutters List**

Date: September 03, 2020

Subject Property Address: 49 GROVE ST Arlington, MA  
Subject Property ID: 54-3-2.A

Subject Property Address: 0-LOT GROVE ST Arlington, MA  
Subject Property ID: 54-3-2.B

Search Distance: 100 Feet

The Board of Assessors certifies the names and addresses of requested parties in interest, all abutters within 100 feet of the property lines, of subject properties.

*Paul D. Farley*  
*Robert E. Grady*  
*[Signature]*

---

**Board of Assessors**

**Abutters List**

Date: September 03, 2020

Subject Property Address: 49 GROVE ST Arlington, MA  
Subject Property ID: 54-3-2.A

Subject Property Address: 0-LOT GROVE ST Arlington, MA  
Subject Property ID: 54-3-2.B

Search Distance: 100 Feet

-----  
Prop ID: 53-2-4  
Prop Location: 855 MASS AVE Arlington, MA  
Owner: TOWN OF ARLINGTON SCHOOL  
Co-Owner: HIGH SCHOOL  
Mailing Address:  
730 MASS AVE  
ARLINGTON, MA 02476  
-----

Prop ID: 53-2-7.B  
Prop Location: 0-LOT MASS AVE Arlington, MA  
Owner: TOWN OF ARLINGTON SCHOOL  
Co-Owner: HIGH SCHOOL  
Mailing Address:  
730 MASS AVE  
ARLINGTON, MA 02476  
-----

Prop ID: 54-1-1  
Prop Location: 0-LOT GROVE ST Arlington, MA  
Owner: TOWN OF ARLINGTON PARK  
Co-Owner: ETHEL WELLINGTON PARK  
Mailing Address:  
730 MASS AVE  
ARLINGTON, MA 02476  
-----

Prop ID: 54-1-21.A  
Prop Location: 24-26 GROVE ST Arlington, MA  
Owner: LOMBARD LEON E JR/TRUSTEE  
Co-Owner: TARA-LEAH REALTY TR  
Mailing Address:  
20 GROVE ST  
ARLINGTON, MA 02474  
-----

Prop ID: 54-1-24.A  
Prop Location: 44 GROVE ST Arlington, MA  
Owner: PRETZER XAVID  
Co-Owner:  
Mailing Address:  
44 GROVE ST  
ARLINGTON, MA 02476  
-----

Prop ID: 54-1-25.A  
Prop Location: 0-LOT DUDLEY ST Arlington, MA  
Owner: PRETZER XAVID  
Co-Owner:  
Mailing Address:  
44 GROVE ST  
ARLINGTON, MA 02476

-----  
Prop ID: 54-2-1.A  
Prop Location: 50 GROVE ST Arlington, MA  
Owner: NOSTALGIA PROPERTIES LLC  
Co-Owner:  
Mailing Address:  
39 BRIGHTON AVE  
BOSTON, MA 02134  
-----

Prop ID: 54-2-1.B  
Prop Location: 54 GROVE ST Arlington, MA  
Owner: NOSTALGIA PROPERTIES LLC  
Co-Owner:  
Mailing Address:  
39 BRIGHTON AVE  
BOSTON, MA 02134  
-----

Prop ID: 54-3-10  
Prop Location: 0-LOT MASS AVE Arlington, MA  
Owner: FRAGER ALBERT S ETAL/ TRUSTEES  
Co-Owner: MARBURY REALTY TRUST  
Mailing Address:  
PO BOX 6500  
AHOLD FINANCIAL SVC  
CARLISLE, PA 17013  
-----

Prop ID: 54-3-12  
Prop Location: 0-LOT MASS AVE Arlington, MA  
Owner: TARLIN LLOYD ETAL TRUSTEES  
Co-Owner: MARBURY REALTY TRUST  
Mailing Address:  
PO BOX 6500  
AHOLD FINANCIAL SVC  
CARLISLE, PA 17013  
-----

Prop ID: 54-3-15  
Prop Location: 905 MASS AVE Arlington, MA  
Owner: THE STOP&SHOP SUPERMRKT LESSEE  
Co-Owner: TARLIN LLOYD D ETAL TRS  
Mailing Address:  
P.O. BOX 6500  
AHOLD FINANCIAL SVC  
CARLISLE, PA 17013  
-----

Prop ID: 54-3-19  
Prop Location: 31 SCHOULER CT Arlington, MA  
Owner: TOWN OF ARLINGTON SCHOOL  
Co-Owner: HIGH SCHOOL  
Mailing Address:  
730 MASS AVE  
ARLINGTON, MA 02476  
-----

Prop ID: 54-3-2.C  
Prop Location: 0-LOT GROVE ST Arlington, MA  
Owner: BOSTON GAS COMPANY  
Co-Owner: DBA NATIONAL GRID  
Mailing Address:  
40 SYLVAN RD  
WALTHAM, MA 02451-1120

-----  
Prop ID: 54-3-2.D  
Prop Location: 0-LOT GROVE ST Arlington, MA  
Owner: BOSTON GAS COMPANY  
Co-Owner: DBA NATIONAL GRID  
Mailing Address:  
40 SYLVAN ST  
WALTHAM, MA 02451-1120  
-----

Prop ID: 54-3-3.A  
Prop Location: 25 GROVE ST Arlington, MA  
Owner: SUPPANISANUWONG PICHAJ  
Co-Owner:  
Mailing Address:  
25 GROVE ST  
ARLINGTON, MA 02476  
-----

Prop ID: 54-3-4.A  
Prop Location: 17-21 GROVE ST Arlington, MA  
Owner: ARLINGTON-GROVE REALTY LLC  
Co-Owner:  
Mailing Address:  
59 UNION SQ  
SOMERVILLE, MA 02143  
-----

Prop ID: 54-3-5.A  
Prop Location: 13-15 GROVE ST Arlington, MA  
Owner: MORSE TODD S & HARIVOLOLONA  
Co-Owner:  
Mailing Address:  
15 GROVE ST  
ARLINGTON, MA 02476  
-----

Prop ID: 54-3-6.A  
Prop Location: 9 GROVE ST Arlington, MA  
Owner: PAULINO STEPHEN--ETAL  
Co-Owner: ALLEN LORRAINE  
Mailing Address:  
9 GROVE ST REAR  
ARLINGTON, MA 02476  
-----

Prop ID: 54-3-6.B  
Prop Location: 11 GROVE ST Arlington, MA  
Owner: BROWN PAULA G  
Co-Owner:  
Mailing Address:  
11 GROVE ST  
ARLINGTON, MA 02476  
-----

Prop ID: 68-3-12  
Prop Location: 67-71 GROVE ST Arlington, MA  
Owner: JOHNSON SANDRA A--ETAL  
Co-Owner: JOHNSON RICHARD A  
Mailing Address:  
1026 MASS AVE SUITE 1  
ARLINGTON, MA 02476  
-----

-----  
Prop ID: 68-3-4  
Prop Location: 158 SUMMER ST Arlington, MA  
Owner: SOUSA LEE JEANNE  
Co-Owner:  
Mailing Address:  
158 SUMMER ST  
ARLINGTON, MA 02474  
-----

Prop ID: 68-3-7  
Prop Location: 166-168 SUMMER ST Arlington, MA  
Owner: ROUCHI KEYHAN  
Co-Owner:  
Mailing Address:  
168 SUMMER ST  
ARLINGTON, MA 02474  
-----

Prop ID: 68-3-8  
Prop Location: 170-178 SUMMER ST Arlington, MA  
Owner: CAMPOBASSO PROPERTIES LLC  
Co-Owner:  
Mailing Address:  
290 MASS AVE  
ARLINGTON, MA 02474  
-----

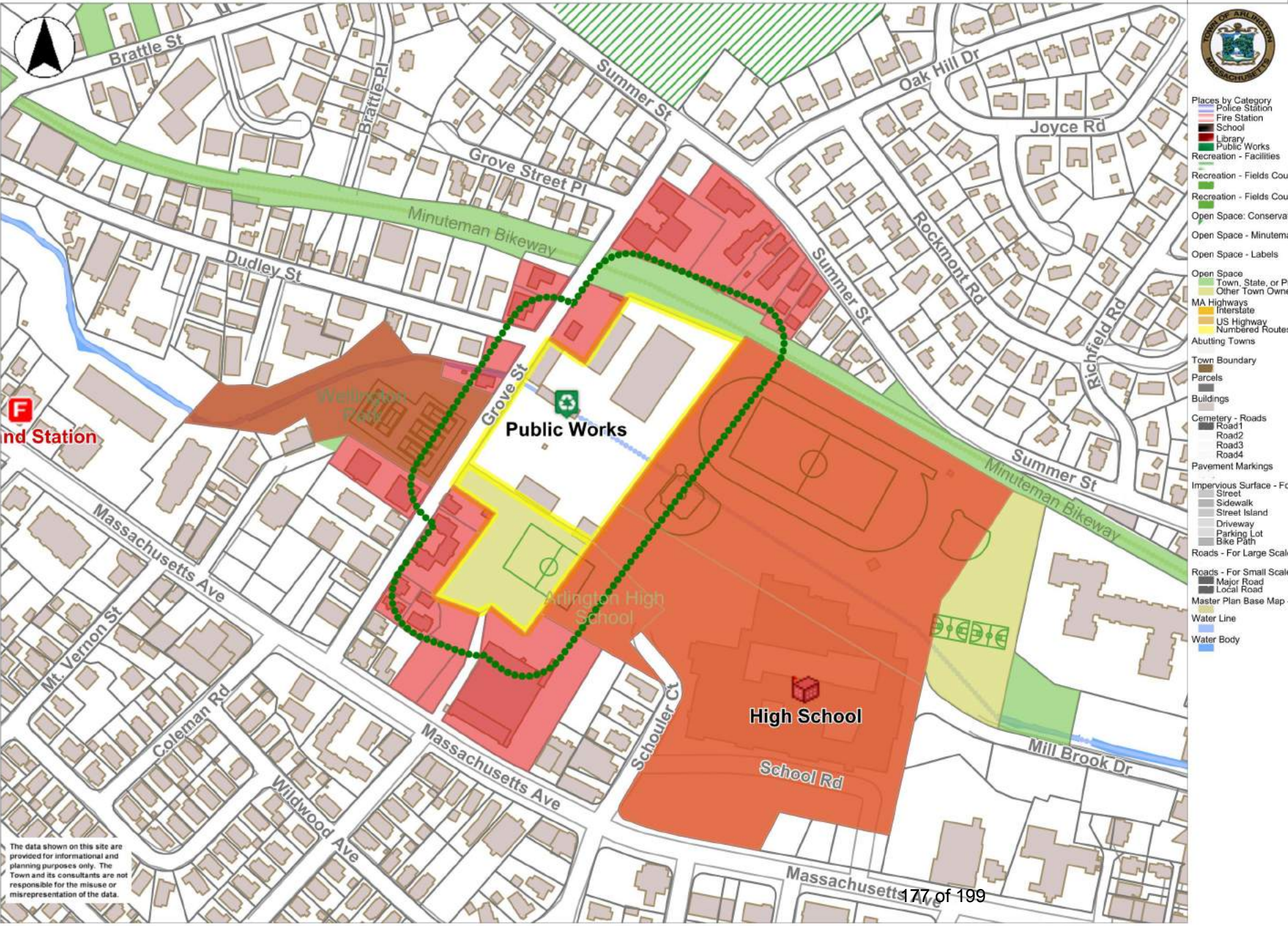
Prop ID: 68.A-3-1  
Prop Location: 162 SUMMER ST UNIT 1 Arlington, MA  
Owner: FITZGERALD ANN V  
Co-Owner:  
Mailing Address:  
162 SUMMER STREET UNIT 1  
ARLINGTON, MA 02474  
-----

Prop ID: 68.A-3-164  
Prop Location: 164 SUMMER ST Arlington, MA  
Owner: BOHMONT CLARK  
Co-Owner: UZIEL LIDIA  
Mailing Address:  
164 SUMMER ST  
ARLINGTON, MA 02474  
-----

Prop ID: 68.A-3-164.R  
Prop Location: 164-R SUMMER ST Arlington, MA  
Owner: HAAS CHRISTOPHER F & ANDREA L  
Co-Owner:  
Mailing Address:  
164R SUMMER ST  
ARLINGTON, MA 02474  
-----

Prop ID: 68.A-3-2  
Prop Location: 162 SUMMER ST UNIT 2 Arlington, MA  
Owner: RAMOS JUAN M &  
Co-Owner: SESTOKAS JANET  
Mailing Address:  
162 SUMMER STREET UNIT 2  
ARLINGTON, MA 02474  
-----





The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.

## Appendix G





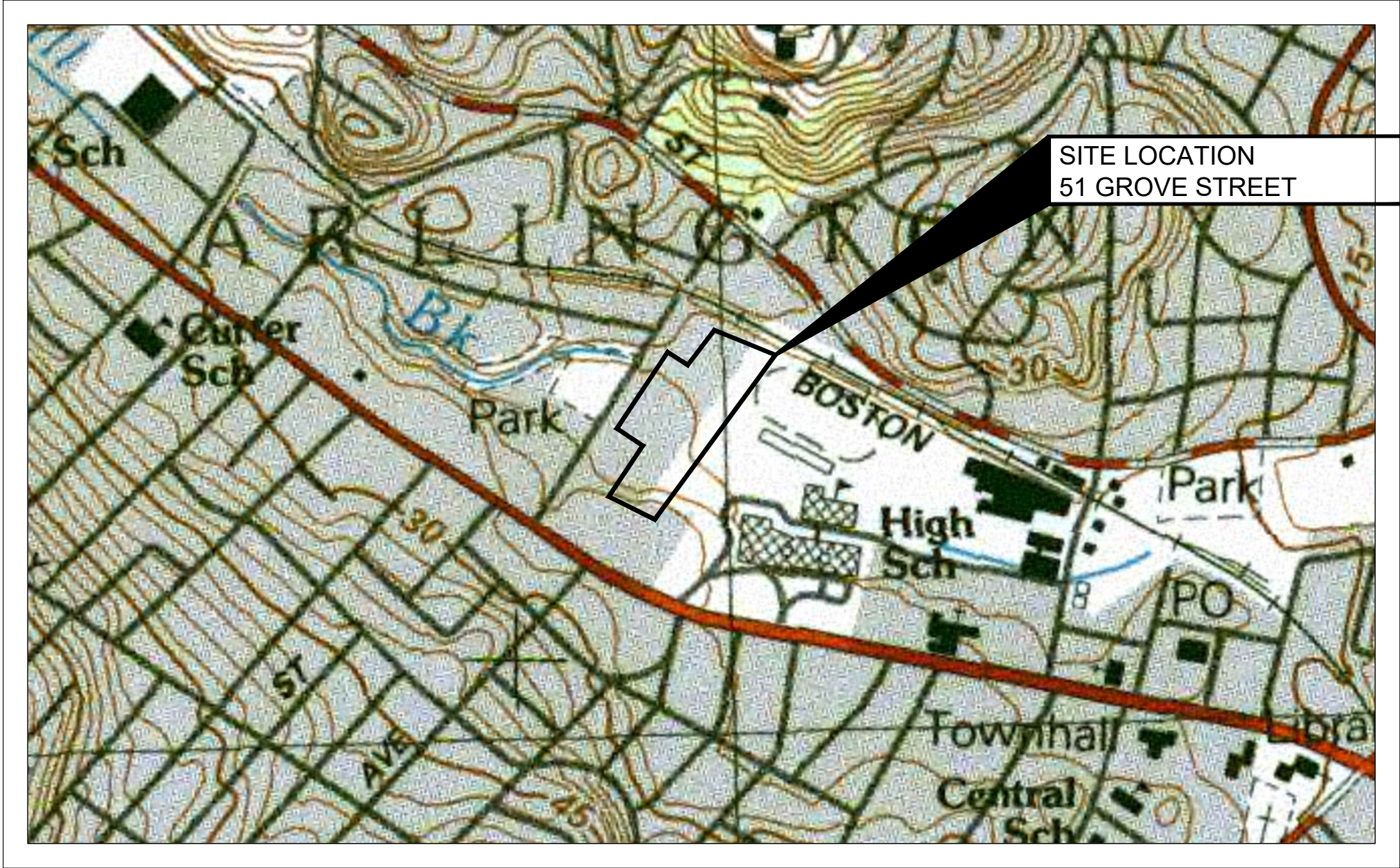




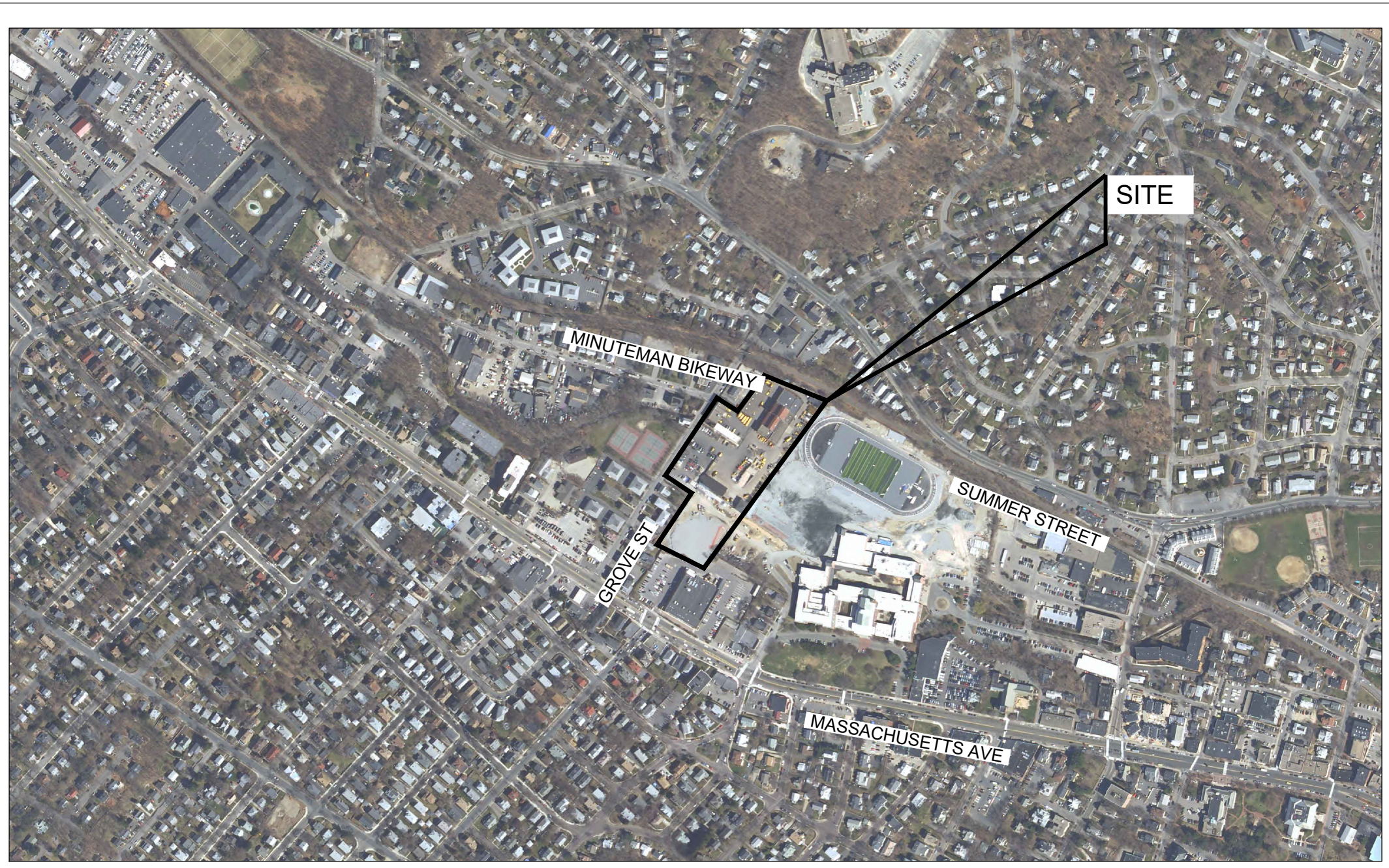
# TOWN OF ARLINGTON

## ARLINGTON TOWN YARD FACILITY

### 51 GROVE STREET, ARLINGTON, MA



LOCUS MAP  
1"=500'



VICINITY MAP  
NOT SCALE

DRAWING INDEX

SHEET	TITLE
G001	GENERAL NOTES & LEGEND
C101	EXISTING CONDITIONS PLAN
C201	SOIL EROSION AND SEDIMENT CONTROL PLAN
C301	DEMOLITION PLAN (PHASE 1)
C302	DEMOLITION PLAN (PHASE 2)
C401	LAYOUT AND MATERIALS PLAN
C501	UTILITY PLAN
C601	GRADING AND DRAINAGE PLAN - OVERALL
C602	GRADING AND DRAINAGE PLAN - WEST
C603	GRADING AND DRAINAGE PLAN - EAST
C801	DETAILS
C802	DETAILS
C803	DETAILS
C804	DETAILS
C805	DETAILS
C806	DETAILS
C807	DETAILS
L100	PLANTING PLAN

Weston & Sampson<sup>SM</sup>  
Weston & Sampson Engineers, Inc.  
100 Foxborough Boulevard, Suite 250  
Foxborough, MA 02035  
978.532.1900 800.SAMPSON  
www.westonandsampson.com

Issued Date:

10/21/2020



Know what's below.  
Call before you dig.

Issued For:

PERMITTING



GENERAL NOTES

1. TOPOGRAPHICAL INFORMATION BASED UPON SURVEY PERFORMED BY WESTON & SAMPSON.
2. REFER TO EXISTING CONDITIONS FOR SURVEY LEGEND. ALL BIDDERS ARE REQUIRED TO INSPECT THE PROJECT SITE IN ITS ENTIRETY PRIOR TO SUBMITTING THEIR BID, AND BECOME FAMILIAR WITH ALL CONDITIONS AS THEY MAY AFFECT THEIR BID. CONTRACTOR AND SUB-CONTRACTOR SHALL BE FAMILIAR WITH ALL DRAWINGS AND SPECIFICATIONS PRIOR TO COMMENCING THE CONSTRUCTION.
3. LOCATIONS OF ANY UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF SUCH UTILITIES, PROTECTING ALL EXISTING UTILITIES AND REPAIRING ANY DAMAGE DONE DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE COORDINATION WITH UTILITY COMPANIES AND PUBLIC AGENCIES AND FOR OBTAINING ALL REQUIRED PERMITS AND PAYING ALL REQUIRED FEES. IN ACCORDANCE WITH M.G.L. CHAPTER 82, SECTION 40, INCLUDING AMENDMENTS, CONTRACTORS SHALL NOTIFY ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES IN WRITING PRIOR TO EXCAVATION. CONTRACTOR SHALL ALSO CALL "DIG SAFE" AT (888) 344-7233 NO LESS THAN 72 HOURS, (EXCLUSIVE OF WEEKENDS AND HOLIDAYS), PRIOR TO SUCH EXCAVATION. DOCUMENTATION OF REQUESTS SHALL BE PROVIDED TO PROJECT REPRESENTATIVE PRIOR TO EXCAVATION WORK.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
5. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER AT NO ADDITIONAL COST TO THE TOWN.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL DRAWINGS AND SPECIFICATIONS TO DETERMINE THE EXTENT OF EXCAVATION AND DEMOLITION REQUIRED TO RECEIVE SITE IMPROVEMENTS.
7. ANY DISCREPANCIES OR CONFLICTS BETWEEN THE DRAWINGS AND EXISTING CONDITIONS, EXISTING CONDITIONS TO REMAIN, TEMPORARY CONSTRUCTION, PERMANENT CONSTRUCTION AND WORK OF ADJACENT CONTRACTS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER BEFORE PROCEEDING. ITEMS ENCOUNTERED IN AREAS OF EXCAVATION THAT ARE NOT INDICATED ON THE DRAWINGS, BUT ARE VISIBLE ON SURFACE, SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE REMOVED AT NO ADDITIONAL COST TO THE TOWN.
8. ANY ALTERATIONS TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE GENERAL CONTRACTOR ON "AS-BUILT" DRAWINGS.
9. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS OUTSIDE THE PROJECT LIMITS, SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.
10. ALL WORK SHOWN ON THE PLANS AS BOLD SHALL REPRESENT PROPOSED WORK. THE TERM "PROPOSED (PROP)" INDICATES WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET (R&R)", OR REMOVE, RELOCATE, RESET, (R,R&R).
11. ALL KNOWN EXISTING STATE, COUNTY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND ARE INDICATED ON THE PLANS.
12. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT HIS EMPLOYEES, AS WELL AS PUBLIC USERS FROM INJURY DURING THE ENTIRE CONSTRUCTION PERIOD USING ALL NECESSARY SAFEGUARDS, INCLUDING BUT NOT LIMITED TO, THE ERECTION OF TEMPORARY WALKS, STRUCTURES, PROTECTIVE BARRIERS, COVERING, OR FENCES AS NEEDED.
13. THE CONTRACTOR SHALL SUPPLY THE OWNER WITH THE NAME OF THE OSHA "COMPETENT PERSON" PRIOR TO CONSTRUCTION.
14. FILLING OF EXCAVATED AREAS SHALL NOT TAKE PLACE WITHOUT THE PRESENCE OR PERMISSION OF THE OWNER.
15. EXISTING TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. NO STOCKPILING OF MATERIAL, EQUIPMENT OR VEHICULAR TRAFFIC SHALL BE ALLOWED WITHIN THE DRIP LINE OF TREES TO REMAIN. NO GUYS SHALL BE ATTACHED TO ANY TREE TO REMAIN. WHEN NECESSARY OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS FOR THE PROTECTION OF EXISTING TREES DURING CONSTRUCTION.
16. TREES AND SHRUBS WITHIN THE LIMITS OF WORK SHALL BE REMOVED ONLY UPON THE APPROVAL OF THE ENGINEER OR AS NOTED ON THE PLANS.
17. THE CONTRACTOR SHALL CALL DIGSAFE AT 1-888-344-7233 AT LEAST 72 HOURS, SATURDAYS, AND HOLIDAYS EXCLUDED, PRIOR TO EXCAVATING AT ANY LOCATION. A COPY OF THE DIGSAFE PROJECT REFERENCE NUMBER(S) SHALL BE GIVEN TO THE OWNER PRIOR TO EXCAVATION.
18. NO FILLING SHALL OCCUR AROUND EXISTING TREES TO REMAIN WITHOUT THE APPROVAL OF THE OWNER OR OWNER REPRESENTATIVE.
19. THE CONTRACTOR SHALL REMOVE ALL SURFACE VEGETATION PRIOR TO GRADING THE SITE. STUMPS SHALL BE STOCKPILED ON SITE FOR DISPOSAL BY THE TOWN. TEMPORARY EROSION CONTROL MEASURES SHOWN ON THE DRAWINGS (INCLUDING SILT FENCE, STRAW WATTLES, OR SILT SOCKS) SHALL BE INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THESE TEMPORARY EROSION CONTROL MEASURES THROUGHOUT THE PROJECT WHICH COST SHALL BE INCIDENTAL TO THE PROJECT.
20. ALL UNSUITABLE UNCONTAMINATED EXCESS SOIL FROM CONSTRUCTION ACTIVITIES SHALL BE DISPOSED OF THE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE TOWN. REMOVAL ACTIVITIES SHALL BE ACCORDANCE WITH STATE AND LOCAL REGULATIONS TO THE TOWN. SUITABLE SOIL EXCAVATION AS PART OF THE PROJECT MUST MEET ONE OR MORE OF THE MATERIAL REQUIREMENTS SPECIFIED IN 31 00 00 EARTHWORK: ON-SITE FILL MATERIALS, WHICH DO NOT CONFORM TO SPEC 31 00 00, SHALL NOT BE USED BELOW ANY STRUCTURES. IF THE CONTRACTOR PROPOSES TO USE THE EXISTING FILL ON SITE BELOW PAVEMENT AREAS, HE MUST DEMONSTRATE THAT THE FILL MEETS THE STRUCTURAL FILL REQUIREMENTS PER 31 00 00. ALL EXCAVATED FILL MATERIAL WHICH DOES NOT MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL BE REMOVED AND DISPOSED OF OFF-SITE AT NO ADDITIONAL COST.
21. CONTRACTOR IS RESPONSIBLE FOR STAKING CONSTRUCTION BASELINES IN FIELD. NO CONSTRUCTION WILL BE PERFORMED WITHOUT THE PROPOSED BASELINES AND LAYOUTS APPROVED BY THE ENGINEER.
22. NO FILL SHALL CONTAIN HAZARDOUS MATERIALS.
23. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AROUND PERIMETER OF WORK AREA (LIMIT OF WORK). FENCE SHALL NOT IMPEDE TRAVEL WAYS.
24. ANY QUANTITIES SHOWN ON PLANS ARE FOR COMPARATIVE BIDDING PURPOSES ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE PROJECT SITE TO VERIFY ALL QUANTITIES AND CONDITIONS PRIOR TO SUBMITTING BID.
25. ALL EXISTING DRAINAGE FACILITIES TO REMAIN SHALL BE MAINTAINED FREE OF DEBRIS, SOIL, SEDIMENT, AND FOREIGN MATERIAL AND OPERATIONAL THROUGHOUT THE LIFE OF THE CONTRACT. REMOVE ALL SOIL, SEDIMENT, DEBRIS AND FOREIGN MATERIAL FROM ALL DRAINAGE STRUCTURES, INCLUDING BUT NOT LIMITED TO, DRAINAGE INLETS, MANHOLES AND CATCH BASINS WITHIN THE LIMIT OF WORK AND DRAINAGE STRUCTURES OUTSIDE THE LIMIT OF WORK THAT ARE IMPACTED BY THE WORK FOR THE ENTIRE DURATION OF CONSTRUCTION.
26. CONTRACTOR'S STAGING AREA MUST BE WITHIN THE CONTRACT LIMIT LINE AND IN AREAS APPROVED BY OWNER. ANY OTHER AREAS THAT THE CONTRACTOR MAY WISH TO USE FOR STAGING MUST BE COORDINATED WITH THE OWNER.
27. THE CONTRACTOR SHALL KEEP ALL STREETS, PARKING LOTS AND WALKS THAT ARE NOT RESTRICTED FROM PUBLIC USE DURING CONSTRUCTION BROOD CLEAN AT ALL TIMES. THE CONTRACTOR SHALL USE ACCEPTABLE METHODS AND MATERIALS TO MAINTAIN ADEQUATE DUST CONTROL THROUGHOUT CONSTRUCTION.
28. CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER.
29. CONTRACTOR SHALL DEWATER AS NECESSARY TO PERFORM THE PROPOSED WORK. CONTRACTOR SHALL BE AWARE OF PERCHED GROUNDWATER. (SEE SPECIFICATION SECTION 00320 SUBSURFACE DATA).
30. THE LIMIT OF WORK SHALL BE DELINEATED IN THE FIELD PRIOR TO THE START OF SITE CLEARING OR CONSTRUCTION.
31. DEEP SUMP CATCH BASINS SHALL BE CLEANED FOLLOWING CONSTRUCTION AND SHALL FOLLOW THE OPERATION AND MAINTENANCE PLAN THEREAFTER.
32. HAULING OF EARTH MATERIALS TO AND FROM THE SITE SHALL BE RESTRICTED TO THE HOURS OF 7:00 AM TO 5:00 PM MONDAY THROUGH FRIDAY.
33. ANY BOULDERS 3 CY OR SMALLER SHALL BE CONSIDERED UNDOCUMENTED FILL AND SHALL BE DISPOSED OF AT NO ADDITIONAL COST TO THE TOWN.
34. WORK ON SATURDAYS SHALL ONLY BE CONDUCTED IF PRIOR WRITTEN PERMISSION IS PROVIDED BY THE TOWN.

BE THE TERM "AS DIRECTED" AS USED IN THE CONTRACT DRAWINGS SHALL BE REPLACED WITH "AS REQUIRED".

EROSION AND SEDIMENT CONTROL NOTES

1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE PUT INTO PLACE PRIOR TO BEGINNING ANY CONSTRUCTION OR DEMOLITION. REFER TO PLAN FOR APPROXIMATE LOCATION OF EROSION AND SEDIMENT CONTROL. REFER TO SPECS AND DETAILS FOR TYPE OF EROSION AND SEDIMENT CONTROL.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTINUAL MAINTENANCE OF ALL CONTROL DEVICES THROUGHOUT THE DURATION OF THE PROJECT.
3. CONTRACTOR SHALL MEET ALL OF THE STATE OF MASSACHUSETTS D.E.P. AND THE TOWN OF ARLINGTON WETLAND ORDINANCE REGULATIONS FOR SEDIMENT AND EROSION CONTROL.
4. EXCAVATED MATERIAL STOCKPILED ON THE SITE SHALL BE SURROUNDED BY A RING OF UNBROKEN SEDIMENT AND EROSION CONTROL FENCE. THE LIMITS OF ALL GRADING AND DISTURBANCE SHALL BE KEPT TO A MINIMUM WITHIN THE APPROVED AREA OF CONSTRUCTION. ALL AREAS OUTSIDE OF THE LIMIT OF CONTRACT SHALL REMAIN TOTALLY UNDISTURBED UNLESS OTHERWISE APPROVED BY OWNER'S REPRESENTATIVE.
5. ALL CATCH BASINS AND DRAIN GRATES WITHIN LIMIT OF CONTRACT SHALL BE PROTECTED WITH FILTER FABRIC DURING THE ENTIRE DURATION OF CONSTRUCTION.
6. EROSION CONTROL BARRIERS TO BE INSTALLED AT THE TOE OF SLOPES. SEE GRADING & DRAINAGE PLANS, NOTES, DETAILS AND SPECIFICATIONS.
7. ANY AREA OUTSIDE THE PROJECT LIMIT THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
8. THE CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY OWNER.
9. ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC/PRIVATE ROADS.

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DEMOLITION & SITE PREPARATION NOTES

1. THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF REMOVING ANY EXISTING SITE FEATURES AND APPURTENANCES NECESSARY TO ACCOMPLISH THE CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS. THE CONTRACTOR SHALL ALSO INCLUDE IN THE BID THE COST NECESSARY TO RESTORE SUCH ITEMS IF THEY ARE SCHEDULED TO REMAIN AS PART OF THE FINAL SITE IMPROVEMENTS. REFER TO PLANS TO DETERMINE EXCAVATION, DEMOLITION AND TO DETERMINE THE LOCATION OF THE PROPOSED SITE IMPROVEMENTS.
2. THE OWNER RESERVES THE RIGHT TO REVIEW ALL MATERIALS DESIGNATED FOR REMOVAL AND TO RETAIN OWNERSHIP OF SUCH MATERIALS. THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE OWNER TO HAVE THOSE MATERIALS REMOVED OFF SITE AT NO ADDITIONAL COST.
3. UNLESS SPECIFICALLY NOTED TO BE SAVED / STOCKPILED (R&S) OR REUSED / RELOCATED (R&R), ALL SITE FEATURES CALLED FOR REMOVAL (REM) SHALL BE REMOVED WITH THEIR FOOTINGS, ATTACHMENTS, BASE MATERIAL, ETC., TRANSPORTED FROM THE SITE TO BE DISPOSED OF IN A LAWFUL MANNER AT AN ACCEPTABLE DISPOSAL SITE AND AT NO COST TO THE OWNER.
4. ALL EXISTING SITE FEATURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PERIOD. ANY FEATURES DAMAGED DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
5. DURING EARTHWORK OPERATIONS, CONTRACTOR SHALL TAKE CARE TO NOT DISTURB EXISTING MATERIALS TO REMAIN, OUTSIDE THE LIMITS OF EXCAVATION AND BACKFILL AND SHALL TAKE WHATEVER MEASURES NECESSARY, AT THE CONTRACTOR'S EXPENSE, TO PREVENT ANY EXCAVATED MATERIAL FROM COLLAPSING. ALL BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED AS SPECIFIED TO THE SUBGRADE REQUIRED FOR THE INSTALLATION OF THE REMAINDER OF THE CONTRACT WORK.
6. IT SHALL BE THE CONTRACTOR'S OPTION, WITH CONCURRENCE OF THE OWNER, TO REUSE EXISTING GRAVEL IF IT MEETS THE REQUIREMENTS OF THE SPECIFICATIONS FOR GRAVEL BORROW.
7. ALL ITEMS CALLED FOR REMOVAL SHALL BE REMOVED TO FULL DEPTH INCLUDING ALL FOOTINGS, FOUNDATIONS, AND OTHER APPURTENANCES, EXCEPT AS SPECIFICALLY NOTED OTHERWISE.
8. 'CLEAR AND GRUB VEGETATION' SHALL INCLUDE REMOVAL OF GRASS, SHRUBS, AND UNDERBRUSH, REMOVAL OF ROOTS, ROUGH GRADING, INSTALLATION OF LOAM (IF APPLICABLE), FINE GRADING, SEEDING AND TURF ESTABLISHMENT BY THE CONTRACTOR.
9. TREES DESIGNATED FOR REMOVAL SHALL BE TAGGED BY CONTRACTOR AND APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
10. THE STORAGE OF MATERIALS AND EQUIPMENT WILL BE PERMITTED AT LOCATIONS DESIGNATED BY OWNER OR OWNER'S REPRESENTATIVE. PROTECTION OF STORED MATERIALS AND EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
11. STRIP & STORE EXISTING TOPSOIL FOR LATER REUSE WHERE APPROPRIATE, AND AS NOTED ON PLAN, WITH APPROPRIATE EROSION AND SEDIMENT CONTROLS.
12. THE CONTRACTOR SHALL PROTECT EXISTING TREES TO REMAIN, CONTRACTOR SHALL INSTALL TREE PROTECTION BARRIER AFTER CLEARING UNDERBRUSH AND TAKE DUE CARE TO PREVENT INJURY TO TREES DURING CLEARING OPERATIONS.

LAYOUT & MATERIALS NOTES

1. REFER TO EXISTING CONDITIONS PLANS FOR SURVEY INFORMATION (SHEET C1.01).
2. COORDINATE ALL LAYOUT ACTIVITIES WITH THE SCOPE OF WORK CALLED FOR BY DEMOLITION, GRADING AND UTILITIES OPERATIONS ENCOMPASSED BY THIS CONTRACT. SET, PROTECT AND REPLACE REFERENCE STAKES AS NECESSARY OR AS REQUIRED BY THE OWNER'S REPRESENTATIVE.
3. ALL WORK SHALL BE PERFORMED BY CONTRACTOR UNLESS SPECIFICALLY INDICATED THAT THE WORK WILL BE PERFORMED "BY TOWN".
4. TO FACILITATE LAYOUT OF PROPOSED SITE FEATURES AND FACILITIES, LAYOUT INFORMATION FOR CERTAIN FUTURE WORK, WHICH DOES NOT INCLUDE WITHIN THE SCOPE OF THIS CONTRACT HAS BEEN PROVIDED ON THE LAYOUT AND MATERIALS PLAN FOR INFORMATION ONLY. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. SOME ITEMS ARE "NOT IN CONTRACT" (NIC) AND SHOWN FOR REFERENCE ONLY.
5. THE LAYOUT OF SITE AMENITIES AND FENCES MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
6. THE LAYOUT OF ALL NEW PATHWAYS / WALKWAYS AND THE GRADING OF ALL SLOPES AND CROSS SLOPES SHALL CONFORM TO THE COMMONWEALTH OF MASSACHUSETTS RULES AND REGULATIONS FOR HANDICAP ACCESS CMR 821. AND THE AMERICANS WITH DISABILITIES ACT (ADA), TITLE 3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY OF ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE REQUIRED.
7. ALL LAYOUT LINES, OFFSETS, OR REFERENCES TO LOCATING OBJECTS ARE EITHER PARALLEL OR PERPENDICULAR UNLESS OTHERWISE DESIGNATED WITH ANGLE OFFSETS NOTED.
8. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT AND STAKED FOR REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO THE START OF CONSTRUCTION. ANY REQUIRED ADJUSTMENTS TO THE LAYOUT SHALL BE UNDERTAKEN AS DIRECTED, AT NO ADDITIONAL COST TO THE OWNER.
9. ALL PROPOSED PAVEMENTS SHALL MEET THE LINE AND GRADE OF EXISTING ADJACENT PAVEMENT SURFACES AND SHALL BE TREATED WITH AN AS-1 MIX AT POINT OF CONNECTION. ALL PATHWAY WIDTHS SHALL BE AS NOTED ON THE LAYOUT AND MATERIALS PLAN.
10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD MEASUREMENT OF ALL PROPOSED FENCES AND GATES.
12. THE DEPTH OF LOAM BORROW FOR ALL PROPOSED LAWN AREAS SHALL BE 4" MINIMUM. ALL DISTURBED AREAS SHALL BE RESTORED WITH LOAM AND SEED UNLESS OTHERWISE NOTED
13. ALL REFERENCES TO LOAM AND SEED (L&S) REFER TO HYDROMULCH SEEDDED LAWN.
14. REFER TO DETAIL DRAWINGS FOR CONSTRUCTION DETAILS.

GRADING, UTILITIES & DRAINAGE NOTES

1. ALL WORK RELATING TO INSTALLATION, RENOVATION OR MODIFICATION OF WATER, DRAINAGE AND/OR SEWER SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF THE TOWN OF ARLINGTON.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES ON THE GROUND AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE OWNER.
3. ALL GRADING IS TO BE SMOOTH AND CONTINUOUS WHERE PROPOSED GRAVEL SURFACE MEETS EXISTING SURFACE, BLEND THE TWO PAVEMENTS AND ELIMINATE ROUGH SPOTS AND ABRUPT GRADE CHANGES AND MEET LINE AND GRADE OF EXISTING CONDITIONS WITH NEW IMPROVEMENTS.
4. CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE (1.5% MINIMUM) AWAY FROM ALL BUILDING FOUNDATIONS AND STRUCTURES.
5. CONTRACTOR SHALL ENSURE ALL AREAS ARE PROPERLY PITCHED TO DRAIN, WITH NO SURFACE WATER PONDING OR PUDDLING.
6. ALL NEW WALKWAYS / ACCESS PATHS MUST CONFORM TO CURRENT AMERICANS WITH DISABILITIES ACT (ADA) REGULATIONS: WALKWAYS SHALL MAINTAIN A CROSS PITCH OF NOT MORE THAN ONE AND A HALF PERCENT (1.5%) AND THE RUNNING SLOPE (PARALLEL TO THE DIRECTION OF TRAVEL) BETWEEN 1% MIN. AND 5% MAX.
7. MINIMUM SLOPE ON ALL WALKWAYS WILL BE 1:100 OR 1% TO PROVIDE POSITIVE DRAINAGE. ANY DISCREPANCIES NOT ALLOWING THIS TO OCCUR SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.
8. ALL UTILITY GRATES, COVERS OR OTHER SURFACE ELEMENTS INTENDED TO BE EXPOSED AT GRADE SHALL BE FLUSH WITH THE ADJACENT FINISHED GRADE AND ADJUSTED TO PROVIDE A SMOOTH TRANSITION AT ALL EDGES.
9. THE CONTRACTOR SHALL SET SUBGRADE ELEVATIONS TO ALLOW FOR POSITIVE DRAINAGE AND PROVIDE EROSION CONTROL DEVICES, STRUCTURES, MATERIALS AND CONSTRUCTION METHODS TO DIRECT SILT MIGRATION AWAY FROM DRAINAGE AND OTHER UTILITY SYSTEMS, PUBLIC/PRIVATE STREETS AND WORK AREAS. CLEAN BASINS REGULARLY AND AT THE END OF THE PROJECT.
10. EXCAVATION REQUIRED WITHIN PROXIMITY OF KNOWN EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.
11. WHERE NEW EARTHWORK MEETS EXISTING EARTHWORK, CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY INTO EXISTING, PROVIDING VERTICAL CURVES OR ROUNDS AT ALL TOP AND BOTTOM OF SLOPES.
12. WHERE A SPECIFIC LIMIT OF WORK LINE IS NOT OBVIOUS OR IMPLIED, BLEND GRADES TO EXISTING CONDITIONS WITHIN 5 FEET OF PROPOSED CONTOURS.
13. RESTORE ALL DISTURBED AREAS AND LIMITS OF ALL REMOVALS TO LOAM AND SEED (L&S) UNLESS OTHERWISE NOTED.
14. SEE EARTHWORK SECTION OF SPECIFICATIONS FOR SPECIFIC EXCAVATION AND FILLING PROCEDURES.
15. FOR STRUCTURE REMODELING (REMOD), CONSTRUCTION METHODS SHALL FOLLOW MASSACHUSETTS DOT STANDARD SPEC. LATEST EDITION (SECTION 220)

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
B	BASELINE
BIT. CONC.	BITUMINOUS CONCRETE
B.M.	BENCH MARK
BWLL	BROKEN WHITE LANE LINE
CEM. CONC.	CEMENT CONCRETE
CLF	CHAIN LINK FENCE
CTE	CONNECT TO EXISTING
E.C.	ELECTRICAL CONTRACTOR
EOP	EDGE OF PAVEMENT
EQ	EQUIPMENT
EN	ENTRANCE
EV	ELECTRIC VEHICLE CHARGING STATION
EXIST.	
(OR EX.)	EXISTING
GRAN. CURB	GRANITE CURB
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
F.L.	
(OR F)	FLOW LINE
G.C.	GENERAL CONTRACTOR
H.C.	HANDICAP
HMA	HOT MIX ASPHALT
L.O.W	LIMIT OF WORK
MB	MAIL BOX
M.H.B.	MASSACHUSETTS HIGHWAY BOUND
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
P	PROPERTY LINE
P.C.	PLUMBING CONTRACTOR
PROP	PROPOSED
PROT	PROTECT
PVMT	PAVEMENT
P.W.W.	PAVED WATERWAY
RC	REINFORCED CONCRETE
REM	REMOVE
REMOD	REMODEL
RL	ROOF LEADER
RET	RETAIN
R&R	REMOVE AND RESET
R,R&R	REMOVE, RELOCATED AND RESET
R&D	REMOVE AND DISPOSE
R.O.W.	RIGHT-OF-WAY
R&S	REMOVE AND STACK
SB	STONE BOUND
SB/DH	STONE BOUND/ DRILL HOLE
SWEL	SOLID WHITE EDGE LINE
SYEL	SOLID YELLOW EDGE LINE
TEMP.	TEMPORARY
TYP.	TYPICAL
VIF	VERIFY IN FIELD
WCR	WHEELCHAIR RAMP

UTILITIES

ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
CB	CATCH BASIN
CBCI	CATCH BASIN W/ CURB INLET
CI	CURB INLET
CI	CAST IRON
C.I.T.	CHANGE IN TYPE
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CON	CONFORM TO REGULATIONS
DWH	DRAIN MANHOLE
DS	DOWN SPOUT
GICI	GUTTER INLET W/ CURB INLET
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
GI	GUTTER INLET
GV	GATE VALVE
GW	GARAGE WASTE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HYD	HYDRANT
INV. ELEV.	INVERT ELEVATION
LB	LEACHING BASIN
LC	LEACHING CHAMBER
LG	LEACHING GALLEY
LP	LIGHT POLE
OCS	OUTLET CONTROL STRUCTURE
OQT	OIL AND GRIT TRAP
OWH	OVERHEAD WIRE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SMH	SEWER MANHOLE
SWTU	STORM WATER TREATMENT UNIT
UP	UTILITY POLE
UPLP	UTILITY POLE WITH LIGHT
VC	VITRIFIED CLAY PIPE
WG	WATER GATE













ALIGNMENT/GRADING

BC	BOTTOM OF CURB
BW	BOTTOM OF WALL
CC	CENTER OF CURVE
ELEV	ELEVATION
L.P.	LOW POINT
H.P.	HIGH POINT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVC	POINT OF VERTICAL CURVATURE
PVT	POINT OF VERTICAL TANGENCY
R	RADIUS OF CURVATURE
S.S.D.	STOPPING SIGHT DISTANCE
STA	STATION
TC	TOP OF CURB
TW	TOP OF WALL

EXISTING

SEE LEGEND ON  
EXISTING CONDITIONS  
PLAN C101

PROPOSED

CB	
	
	
	
	
	
	
	
	
	
	
	

CATCH BASIN
CATCH BASIN CURB INLET
EDGE OF ROAD
HANDHOLE (NUMBER AS NOTED)
ELECTRIC MANHOLE
TELEPHONE MANHOLE
SEWER MANHOLE
DRAINAGE MANHOLE
GAS GATE
WATER GATE VALVE
HYDRANT
WELL
LIGHTPOLE

DRAIN PIPE
SEWER MAIN
SEWER MAIN BY P.C.
ELECTRIC DUCT
TELEPHONE/COMMUNICATIONS/FIRE ALARM
GARAGE WASTE LINE
GARAGE WASTE LINE BY P.C.
VENTS BY P.C.
GAS MAIN
WATER MAIN
OVERHEAD WIRES
GUARD RAIL (SIZE AND TYPE NOTED)
HIGHWAY / PROPERTY BOUND (TYPE NOTED)
CITY OR TOWN OR COUNTY LAYOUT LINE
CITY/TOWN OR COUNTY BOUNDARY
BASE OR SURVEY LINE
CENTERLINE OF CONSTRUCTION
PROPERTY LINE

WHEELCHAIR RAMP (WCR)

TREE (SIZE AND TYPE NOTED)

FENCE (SIZE AND TYPE NOTED)

ELECTRIC VEHICLE CHARGING STATION

TEST PIT

MONITORING WELL

UTILITY POLE

GUY POLE

FLAG POLE

SIGN

TREE LINE

BOLLARD

BIKE RACK

SAWCUT

EROSION CONTROL (SPECIFIED ON PLANS)

OBSERVATION WELL

LIMIT OF WORK

WETLAND BUFFER

TEMPORARY FENCE

CONCRETE BOUND FOUND

TEMPORARY BENCHMARK (TBM)

Project:

TOWN OF ARLINGTON



PUBLIC WORKS FACILITY  
RENOVATIONS & ADDITION  
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Seal:



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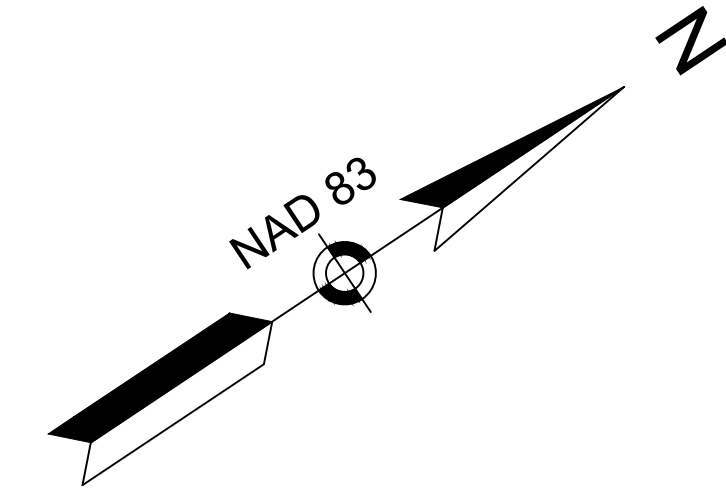
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- LEGEND**
- EDGE OF WOODS  
DECIDUOUS TREE  
CONIFEROUS TREE  
SHRUB/BUSH  
SIGN  
UTILITY POLE  
LIGHT POLE  
HYDRANT  
WATER SHUTOFF  
GAS VALVE  
WATER VALVE  
MONUMENT  
IRON PIN / IRON ROD  
HANDICAP SPACE  
PROPERTY LINE  
EASEMENT  
STORM SEWER LINE  
SANITARY SEWER LINE  
WATER LINE  
GAS LINE  
SIGNAL WIRE LINE  
CABLE LINE  
FIBER OPTIC LINE  
LPS LOW PRESSURE SEWER LINE  
ELECTRIC LINE  
HEATING LINE  
TELEPHONE LINE  
SANITARY MANHOLE (SMH)  
STORM MANHOLE (STMH)  
CATCHBASIN (CB)  
METAL POST/BOLLARD (BOL)  
ELECTRIC MANHOLE (MHE)  
MISC. MANHOLE (MH)  
TELEPHONE MANHOLE (MHT)  
MAJOR CONTOUR LINE  
MINOR CONTOUR LINE
- CLEAN UTILITY CORRIDOR  
EASEMENTS  
100 YEAR FLOOD LINE PER FEMA  
REGULATORY FLOODWAY PER FEMA



Project:

TOWN OF ARLINGTON




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Seal:



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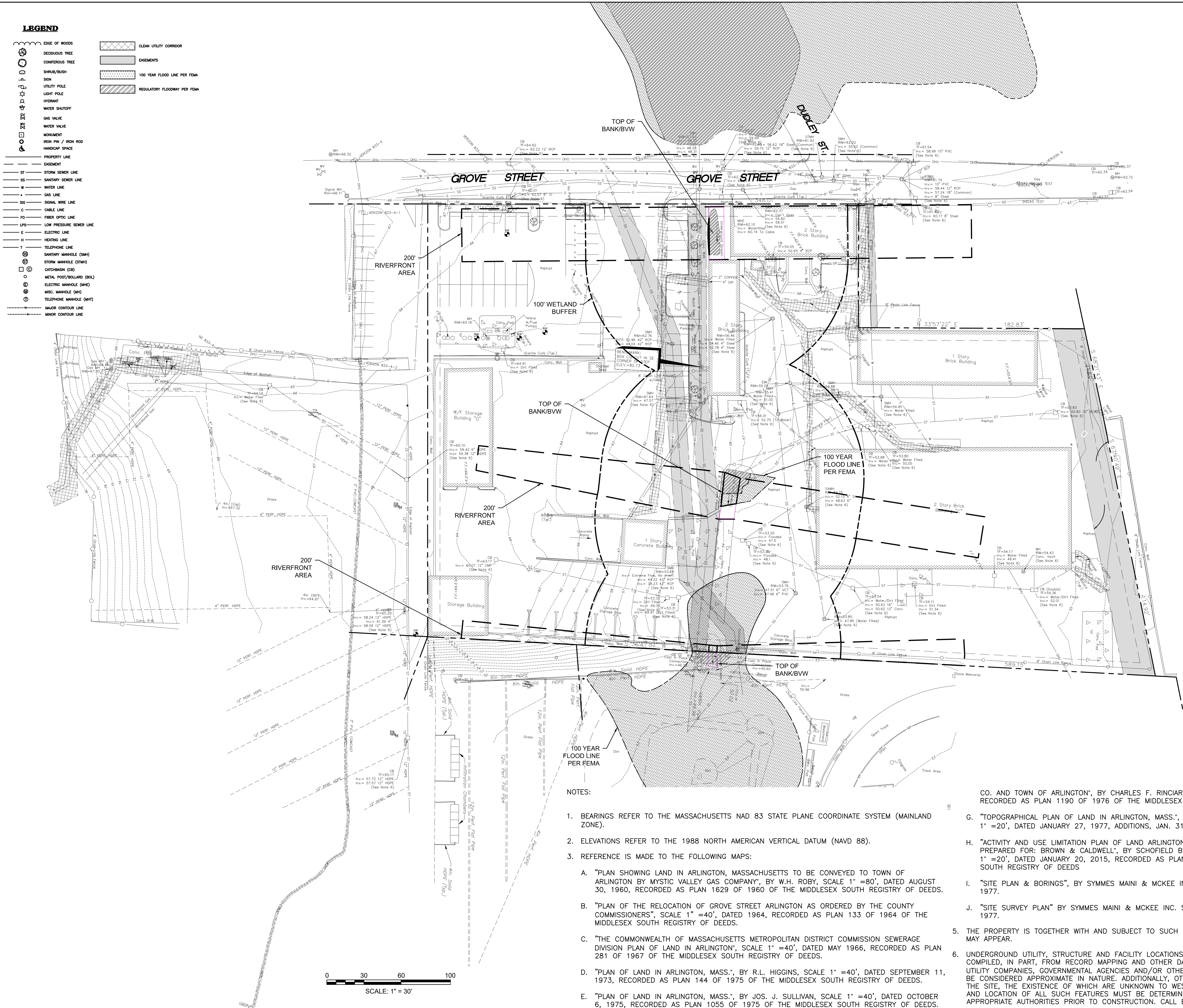
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CONDITIONS  
PLAN

Sheet Number:

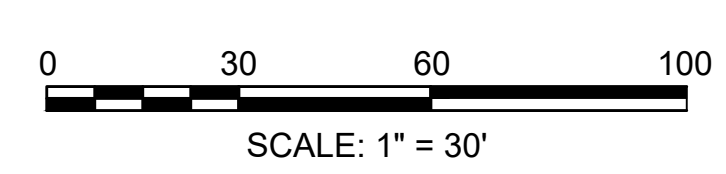
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NOTES:

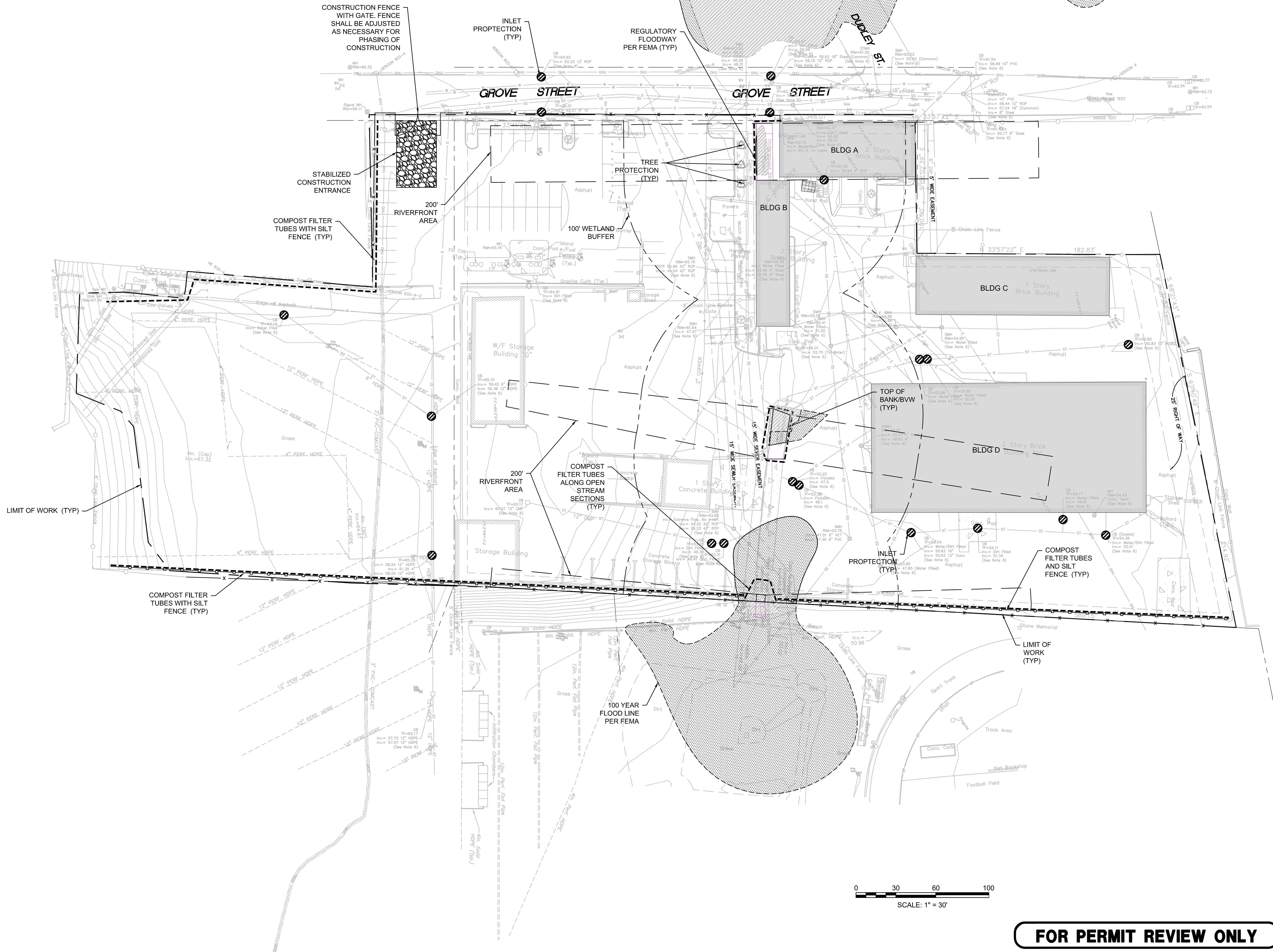
- BEARINGS REFER TO THE MASSACHUSETTS NAD 83 STATE PLANE COORDINATE SYSTEM (MAINLAND ZONE).
- ELEVATIONS REFER TO THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD 88).
- REFERENCE IS MADE TO THE FOLLOWING MAPS:
  - "PLAN SHOWING LAND IN ARLINGTON, MASSACHUSETTS TO BE CONVEYED TO TOWN OF ARLINGTON BY MYSTIC VALLEY GAS COMPANY", BY W.H. ROBY, SCALE 1" = 80', DATED AUGUST 30, 1960, RECORDED AS PLAN 1629 OF 1960 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
  - "PLAN OF THE RELOCATION OF GROVE STREET ARLINGTON AS ORDERED BY THE COUNTY COMMISSIONERS", SCALE 1" = 40', DATED 1964, RECORDED AS PLAN 133 OF 1964 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
  - "THE COMMONWEALTH OF MASSACHUSETTS METROPOLITAN DISTRICT COMMISSION SEWERAGE DIVISION PLAN OF LAND IN ARLINGTON", SCALE 1" = 40', DATED MAY 1966, RECORDED AS PLAN 281 OF 1967 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
  - "PLAN OF LAND IN ARLINGTON, MASS.", BY R.L. HIGGINS, SCALE 1" = 40', DATED SEPTEMBER 11, 1973, RECORDED AS PLAN 144 OF 1975 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
  - "PLAN OF LAND IN ARLINGTON, MASS.", BY JOS. J. SULLIVAN, SCALE 1" = 40', DATED OCTOBER 6, 1975, RECORDED AS PLAN 1055 OF 1975 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
  - "PLAN OF LAND IN ARLINGTON - MASS. SHOWING PROPOSED TRANSFER OF LAND BETWEEN GAS CO. AND TOWN OF ARLINGTON", BY CHARLES F. RINCIARI, SCALE 1" = 20', DATED SEPT. 1976, RECORDED AS PLAN 1190 OF 1976 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS.
- "TOPOGRAPHICAL PLAN OF LAND IN ARLINGTON, MASS.", BY SCHOFIELD BROTHERS, INC., SCALE 1" = 20', DATED JANUARY 27, 1977, ADDITIONS, JAN. 31, 1977.
- "ACTIVITY AND USE LIMITATION PLAN OF LAND ARLINGTON, MASS. (MIDDLESEX COUNTY) PREPARED FOR: BROWN & CALDWELL", BY SCHOFIELD BROTHERS OF NEW ENGLAND, INC., SCALE 1" = 20', DATED JANUARY 20, 2015, RECORDED AS PLAN 144 OF 1975 OF THE MIDDLESEX SOUTH REGISTRY OF DEEDS
- "SITE PLAN & BORINGS", BY SYMMES MAINI & MCKEE INC. SCALE 1" = 20', DATED MARCH 1, 1977.
- "SITE SURVEY PLAN" BY SYMMES MAINI & MCKEE INC. SCALE 1" = 20', DATED MARCH 1, 1977.
- THE PROPERTY IS TOGETHER WITH AND SUBJECT TO SUCH EASEMENTS AND RIGHTS OF RECORD AS MAY APPEAR.
- UNDERGROUND UTILITY, STRUCTURE AND FACILITY LOCATIONS DEPICTED HEREON HAVE BEEN COMPILED, IN PART, FROM RECORD MAPPING AND OTHER DATA SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES, GOVERNMENTAL AGENCIES AND/OR OTHER SOURCES. THESE LOCATIONS MUST BE CONSIDERED APPROXIMATE IN NATURE. ADDITIONALLY, OTHER SUCH FEATURES MAY EXIST ON THE SITE, THE EXISTENCE OF WHICH ARE UNKNOWN TO WESTON & SAMPSON. THE EXISTENCE, SIZE AND LOCATION OF ALL SUCH FEATURES MUST BE DETERMINED AND VERIFIED IN THE FIELD BY THE APPROPRIATE AUTHORITIES PRIOR TO CONSTRUCTION. CALL BEFORE YOU DIG.
- INVERTS NOT ATTAINABLE DO TO ICE OR OTHER DEBRIS RESTRICTING VISIBILITY AND OR ACCESS. INVERTS WERE TAKEN FROM RECORD DRAWINGS LISTED AS 3(I) & 3(J) IN THE ABOVE NOTES AND CONVERTED TO NEW ELEVATION VALUES BASED ON NAVD 88 DATUM.
- EXISTING CONDITIONS ARE SHOWN BASED ON EXISTING CONDITION SURVEY PREPARED BY WESTON & SAMPSON, DATED FEBRUARY 16, 2018.






SITE PREPARATIONS LEGEND

- STABILIZED CONST ENTRANCE
- EXISTING BUILDING/STRUCTURE TO REMAIN
- LIMIT OF WORK
- COMPOST FILTER TUBES
- SILT FENCE
- TREE REMOVAL
- TREE PROTECTION
- INLET PROTECTION
- 100 YEAR FLOOD LIMIT PER FEMA
- REGULATORY FLOODWAY PER FEMA



Project:

TOWN OF ARLINGTON



PUBLIC WORKS FACILITY RENOVATIONS & ADDITION

51 GROVE STREET

ARLINGTON, MA 02476

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Consultants:

Seal:



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Drawing Title:

SOIL EROSION AND SEDIMENT CONTROL PLAN

Sheet Number:

C201

FOR PERMIT REVIEW ONLY

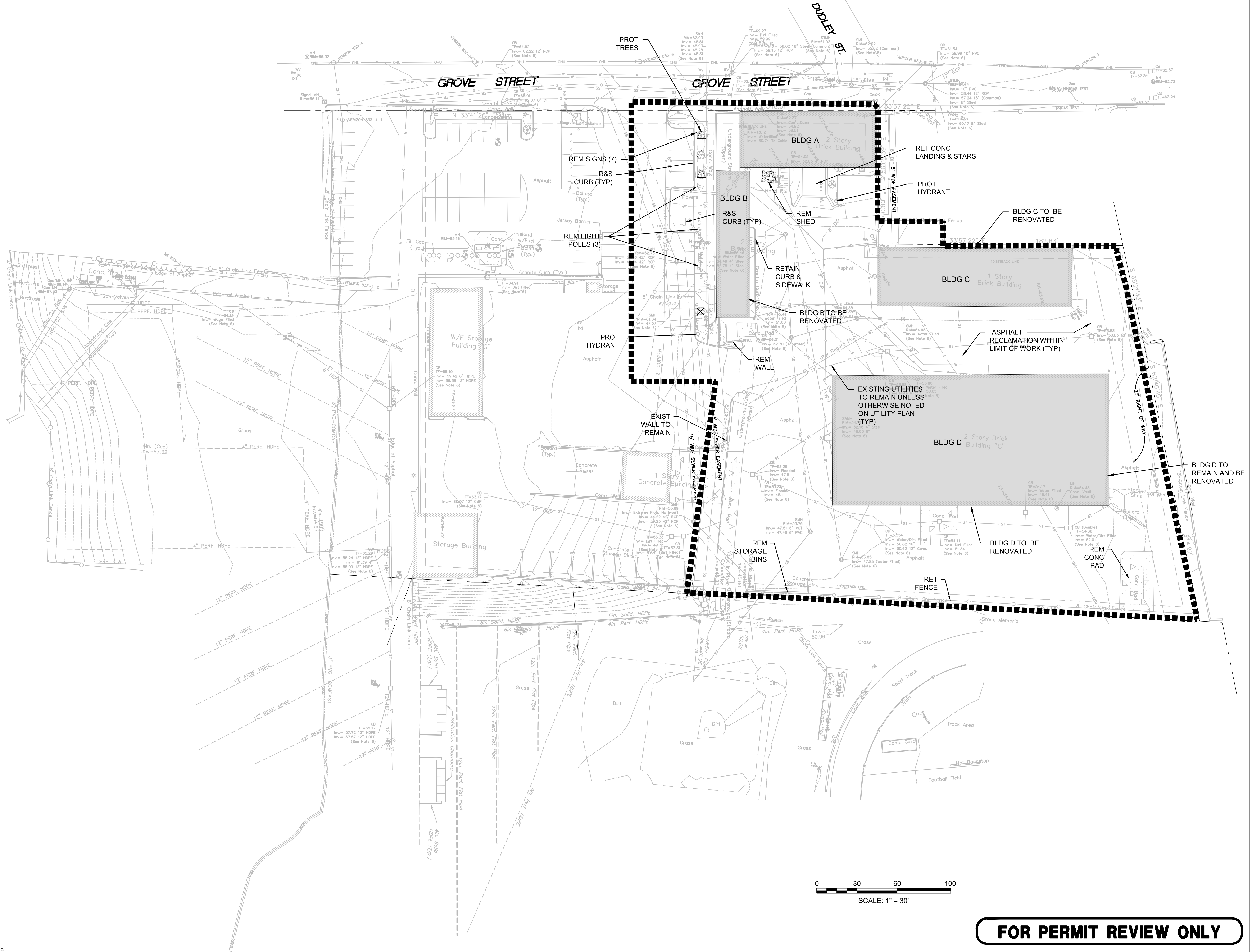
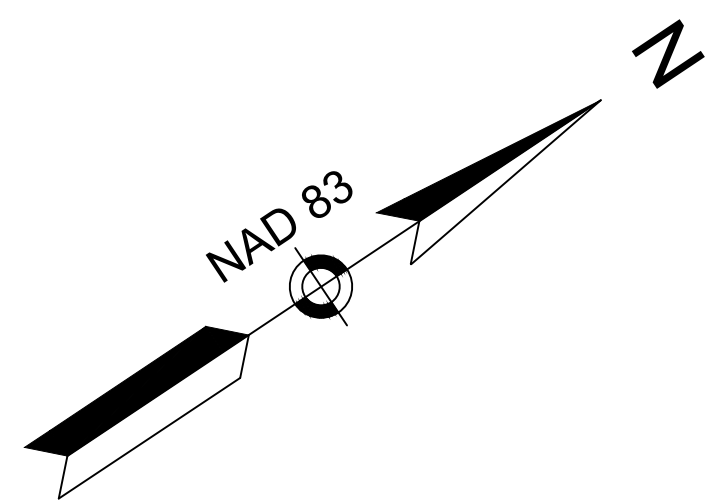






SITE PREPARATIONS LEGEND

- STABILIZED CONST ENTRANCE
- ABOVE GRADE STRUCTURES TO BE REMOVED. INCLUDES REMOVAL OF FOUNDATION WALLS AND SUBGRADE STRUCTURES TO 4" BELOW FINAL GRADE. STRUCTURES TO BE DEMOLISHED OR REMOVED FROM SITE
- EXISTING BUILDING/STRUCTURE TO REMAIN
- UTILITIES TO BE REMOVED OR ABANDONED
- LIMIT OF WORK - PHASE 2
- TREE REMOVAL
- TREE PROTECTION
- TREE PROTECTION



Project:

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DEMOLITION PLAN (PHASE 2)

Sheet Number:

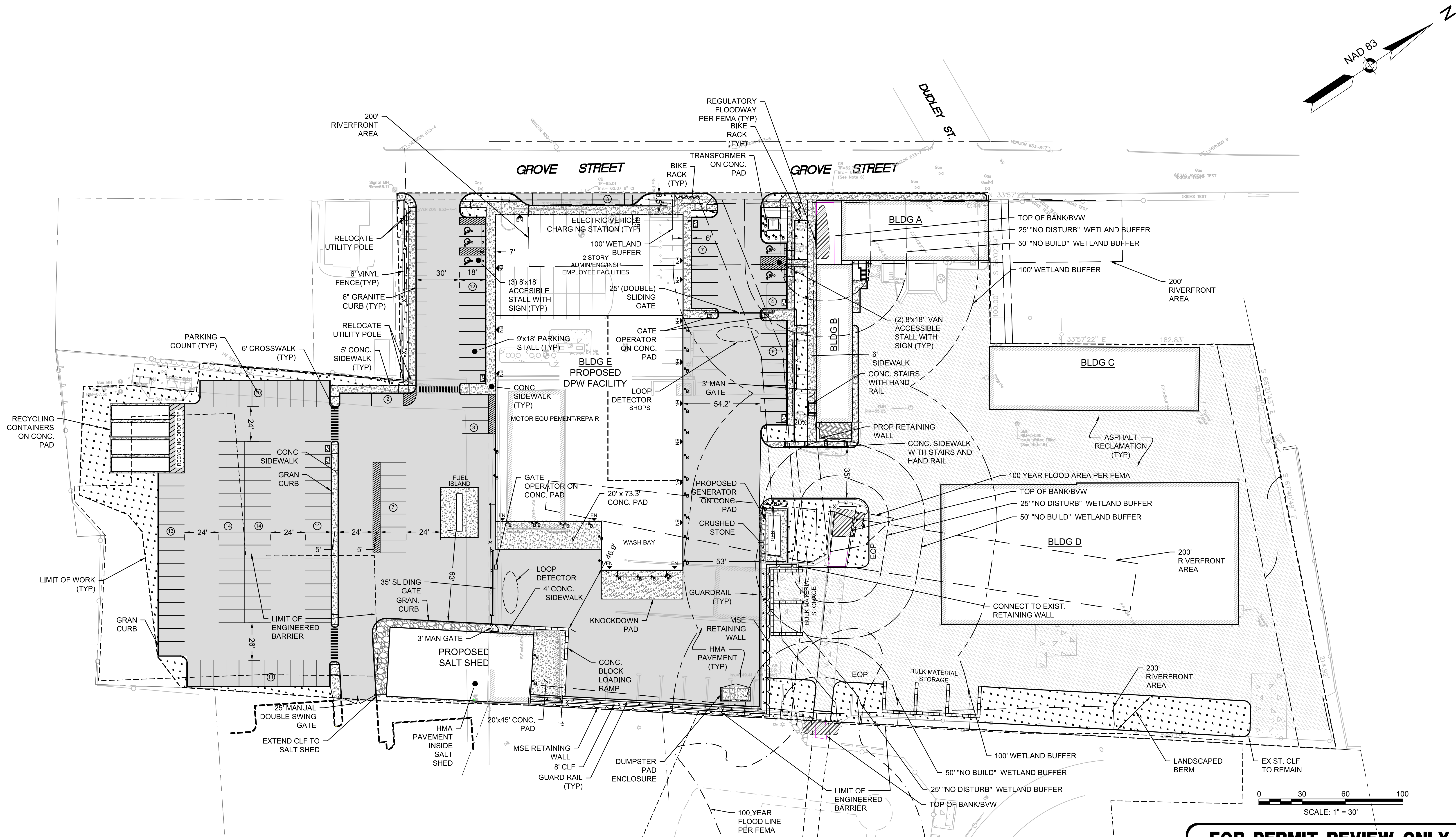
C302

WESTON & SAMPSON COPYRIGHT 2019



- LEGEND:
- HMA PAVEMENT
  - PAVEMENT RECLAMATION
  - CONCRETE
  - CRUSHED STONE
  - LANDSCAPED AREAS
  - 100 YEAR FLOOD LINE PER FEMA
  - REGULATORY FLOODWAY PER FEMA

- NOTES:
- GRANITE CURB SHALL BE TYPE VA-4 UNLESS OTHERWISE IDENTIFIED.
  - EXISTING SITE CONDITIONS SHOWN ARE FROM GROUND SURVEYS PERFORMED BY WESTON & SAMPSON. DATED xxx. UPDATED ON xxx.
  - PROVIDE 6" HMA PAVING WITHIN SALT SHED.
  - PROVIDE NEW HOT MIX ASPHALT PAVEMENT BETWEEN ALL PROPOSED CURB LINES, EDGE OF PAVEMENT & BUILDINGS (INCLUDING UP TO SAWCUT LIMITS).
  - ALL SAWCUTS SHALL HAVE RS-1 ASPHALT EMULSION TACK COAT ADDED PRIOR TO ABUTTING PAVEMENT, MATCHING EXISTING CONDITIONS.
  - CONTRACTOR SHALL PATCH EXISTING PAVED AREAS WITH HMA FOLLOWING UTILITY INSTALLATION
  - ALL BACKFILL MATERIAL BELOW PROPOSED BUILDINGS SHALL CONSIST OF STRUCTURAL FILL PER EARTHWORK SPECIFICATION 31 00 00.



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LAYOUT AND MATERIALS PLAN

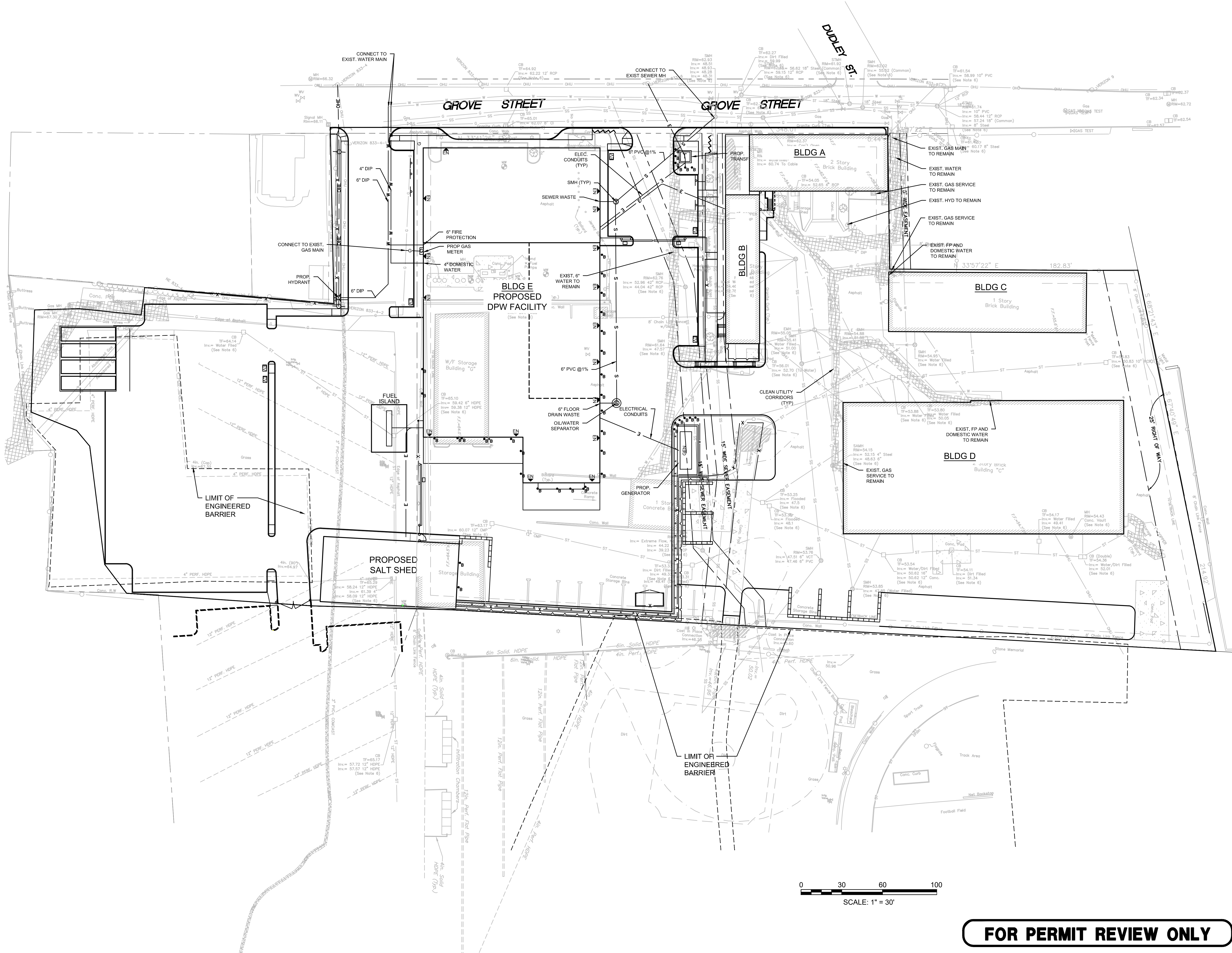
Sheet Number:

C401



NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE G.C. SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE G.C. FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE G.C. AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE G.C. SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY OWNER.
- THE G.C. IS RESPONSIBLE FOR ADJUSTING HORIZONTAL AND VERTICAL ALIGNMENT OF PROPOSED UTILITIES AS REQUIRED TO COMPLETE THE PROPOSED DRAINAGE AND SEWER WORK.
- THE G.C. TO PROVIDE ALL NECESSARY FITTINGS TO ACHIEVE WATER SERVICE LAYOUT AS SHOWN ON THE DRAWINGS.
- GENERAL CONTRACTOR (G.C.) IS RESPONSIBLE FOR PROVIDING PROPER TRANSITION MATERIAL AND FITTINGS TO PROVIDE A TIGHT TRANSITION FROM DISSIMILAR PIPE MATERIALS FROM PLUMBING & FIRE PROTECTION WORK TO G.C. WORK.
- P.C. IS RESPONSIBLE FOR THE CONSTRUCTION OF THE DOMESTIC WATER LINES & SANITARY SERVICES INSIDE THE BUILDING AND EXTENDING 10' FROM THE FACE OF THE BUILDING WHERE IT EXISTS UNLESS OTHERWISE NOTED. THE G.C. IS RESPONSIBLE FOR EXTENDING NEW SERVICE INTO THE SITE AND FOR CONNECTION TO THE PLUMBING CONTRACTOR'S WORK.
- P.C. SHALL PROVIDE & INSTALL THE OIL/WATER/SAND SEPARATOR (OWS) SYSTEM. P.C. SHALL PROVIDE & INSTALL ALL SANITARY AND VENT PIPING FROM THE BUILDING TO THE STRUCTURE. G.C. SHALL EXCAVATE & BACKFILL FOR ALL EXTERIOR PIPING AND OIL/WATER SEPARATOR.
- G.C. IS RESPONSIBLE FOR EXCAVATION, BACKFILL, CONCRETE ENCASEMENT, AND REINFORCEMENT FOR ALL UNDERGROUND CONDUITS/DUCTBANKS, HANDHOLES, PLUMBING, AND FIRE PROTECTION WORK. COORDINATE LIMITS OF WORK WITH FP, P, E, AND TC DRAWINGS FOR WORK NOT SHOWN ON THIS DRAWING.
- THE FIRE PROTECTION (FP) CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION OF THE FIRE PROTECTION SERVICE INSIDE THE BUILDING AND EXTENDING 10' OUTSIDE FROM THE FACE OF THE BUILDING (SEE FP-SERIES DRAWINGS). G.C. IS RESPONSIBLE FOR EXTENDING NEW SERVICE INTO THE SITE AND FOR CONNECTION TO THE FIRE PROTECTION CONTRACTOR'S WORK.
- ALL UNDERGROUND WORK SHALL BE COORDINATED WITH THE FINAL PLANTING PLAN TO AVOID PLANTINGS FROM BEING INSTALLED OVER NEW UTILITIES.
- LIGHT POLE CONDUITS ARE NOT SHOWN FOR CLARITY. REFER TO E-SERIES DRAWINGS FOR LIGHT POLE CONDUIT AND ROUTING. G.C. TO PROVIDE & INSTALL LIGHT POLE FOUNDATIONS & E.C. TO PROVIDE AND INSTALL LIGHT POLES. G.C. TO EXCAVATE AND BACKFILL FOR ALL CONDUITS. E.C. TO PROVIDE AND INSTALL CONDUITS.
- CONDUITS FOR AUTOMATIC GATES AND LOOP DETECTORS NOT SHOWN. COORDINATE QUANTITY AND LOCATION WITH E-SERIES DRAWINGS. E.C. TO PROVIDE AND INSTALL CONDUITS. G.C. TO EXCAVATE AND BACKFILL FOR CONDUITS.
- DRAINAGE INFORMATION IN GRAY IS SHOWN FOR ILLUSTRATIVE AND COORDINATION PURPOSE. SEE C6.01-C6.03 GRADING AND DRAINAGE PLANS FOR DRAINAGE INFORMATION.
- G.C. IS RESPONSIBLE FOR EXCAVATION AND BACKFILL FOR ALL UNDERGROUND UTILITIES WITHIN THE BUILDING. COORDINATE LOCATIONS, ROUTING, DEPTH, ETC. WITH EACH SUBCONTRACTOR.
- THE G.C. SHALL BE RESPONSIBLE FOR THE SAWCUTTING, EXCAVATION, SAND PIPE BEDDING, BACKFILL, AND TRENCH PATCHING OF THE GAS LINE. THE PIPE INSTALLATION WILL BE THE RESPONSIBILITY OF THE GAS COMPANY FROM THE MAIN TO THE METER. THE GAS COMPANY WILL DETERMINE IN THE FIELD THE EXACT LOCATION FOR PROPER CONNECTION TO THE EXISTING GAS MAIN. G.C. SHALL EXCAVATE & BACKFILL FOR GAS LINE ACCORDINGLY.



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Laurence F. Keenan, Jr.  
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UTILITY PLAN

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C501



## LEGEND:

 100 YEAR FLOOD LINE PER FEMA REGULATORY FLOODWAY PER FEMA

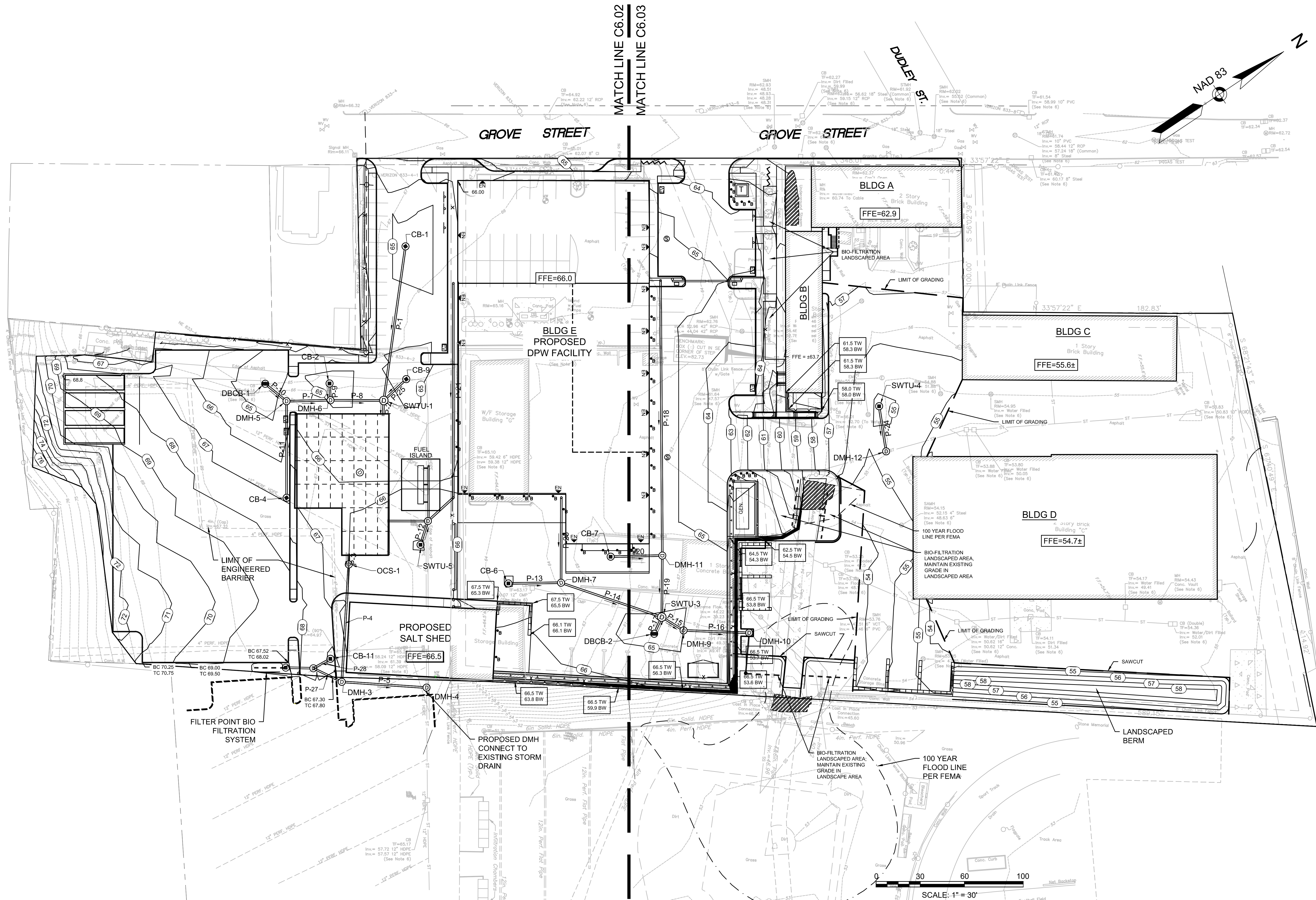
## NOTES:

1. UNLESS OTHERWISE NOTED ALL DRAIN PIPES SHALL BE 12" HDPE (HIGH DENSITY POLYETHYLENE).
2. UNLESS OTHERWISE NOTED, ALL DRAIN MANHOLES SHALL BE 4' INSIDE DIAMETER.
3. ALL RIM ELEVATIONS SHALL BE FLUSH WITH FINISH GRADE.
4. DUMPSTER PAD SHALL SLOPE AT A MINIMUM 2% INTO THE PAVED AREA.
5. FOR THE PROPOSED ROOF DRAIN LINES, THE CONTRACTOR SHALL INSTALL CLEAN OUTS AT THE END OF THE PIPE LINE, AT ANY LOCATION WHERE THE PIPE CHANGES DIRECTIONS, AND AT A 100 FOOT INTERVALS AS NEEDED. CLEANOUTS LOCATED IN PAVED AREAS SHALL BE INSTALLED TO PROVIDE H-20 WHEEL LOADING RATING.
6. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED. BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
7. THE CONTRACTOR SHALL INSTALL SILT SACKS ON ALL PROPOSED INLETS FOR THE DURATION OF CONSTRUCTION AND INSPECT THE CATCH BASINS AFTER EACH RAIN EVENT. THE SEDIMENT FROM SEDIMENT TRAPS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT. SILT SACKS SHALL BE REMOVED ONCE THE SITE IS PERMANENTLY STABILIZED AT THE END OF CONSTRUCTION.

PIPE TABLE				
PIPE	PIPE LOCATION	SIZE & TYPE	LENGTH	SLOPE
P-1	CB-1 TO SWTU-1	12" HDPE	101 LF	0.005
P-2	SWTU-1 TO DET-1	12" HDPE	8 LF	0.009
P-3	DET-1 TO OCS-1	12" HDPE	5 LF	0.000
P-4	OCS-1 TO DMH-3	12" HDPE	76 LF	0.007
P-5	DMH-3 TO DMH-4	12" HDPE	54 LF	0.005
P-7	DMH-5 TO DMH-6	12" HDPE	26 LF	0.005
P-8	DMH-6 TO SWTU-1	12" HDPE	32 LF	0.005
P-9	CB-2 TO DMH-6	12" HDPE	8 LF	0.007
P-10	DBC-1 TO DMH-5	12" HDPE	15 LF	0.006
P-11	CB-4 TO DMH-5	12" HDPE	62 LF	0.025

PIPE TABLE				
PIPE	PIPE LOCATION	SIZE & TYPE	LENGTH	SLOPE
P-12	SWTU-5 TO DS-34	12" HDPE	13 LF	0.005
P-13	CB-6 TO DMH-7	12" HDPE	32 LF	0.005
P-14	DMH-7 TO SWTU-3	12" HDPE	68 LF	0.010
P-15	SWTU-3 TO DMH-9	12" HDPE	13 LF	0.080
P-16	DMH-9 TO DMH-10	12" HDPE	41 LF	0.080
P-17	DBC-2 TO SWTU-3	12" HDPE	8 LF	0.048
P-18	CO-1 TO DMH-11	12" HDPE	185 LF	0.020
P-19	DMH-11 TO SWTU-3	12" HDPE	37 LF	0.020
P-20	CB-7 TO DMH-11	12" HDPE	31 LF	0.005
P-21	CO-2 TO CO-3	12" HDPE	146 LF	0.010

PIPE TABLE				
PIPE	PIPE LOCATION	SIZE & TYPE	LENGTH	SLOPE
P-23	CO-4 TO DMH-7	12" HDPE	56 LF	0.018
P-24	SWTU-4 TO DMH-12	12" HDPE	27 LF	0.005
P-25	CB-9 TO SWTU-1	12" HDPE	17 LF	0.004
P-27	TO DMH-3	12" HDPE	19 LF	0.005
P-28	CB-11 TO	12" HDPE	11 LF	0.005
P-29	CO-3 TO DS-34	12" HDPE	21 LF	0.010
P-30	DS-34 TO DET-1	12" HDPE	25 LF	0.010



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## Consultants:

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GRADING AND  
DRAINAGE PLAN -  
OVERALL

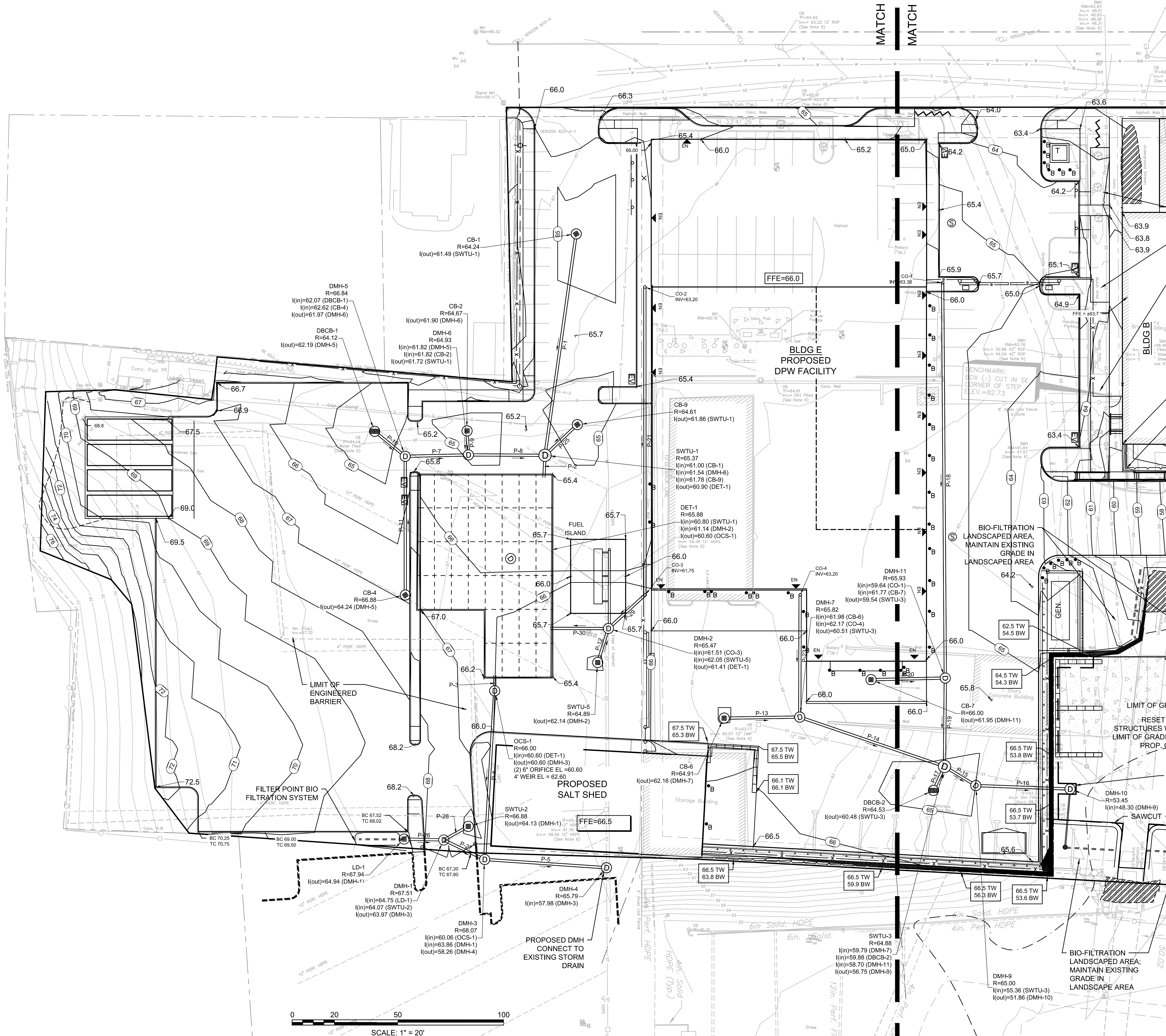
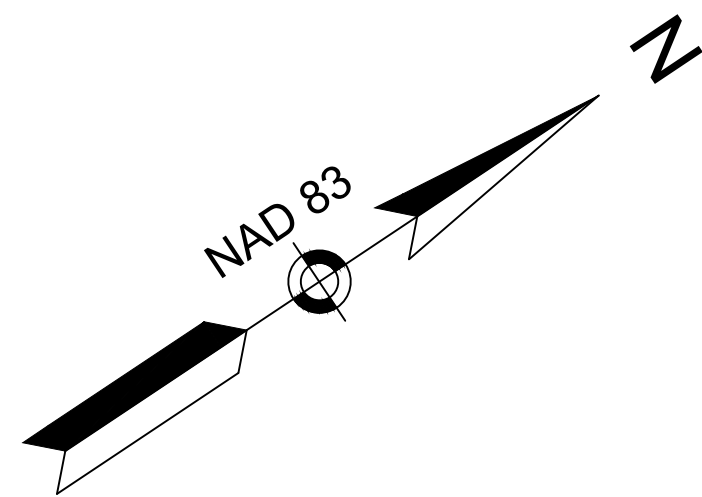
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C601

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LEGEND:  
100 YEAR FLOOD LINE PER FEMA  
REGULATORY FLOODWAY PER FEMA



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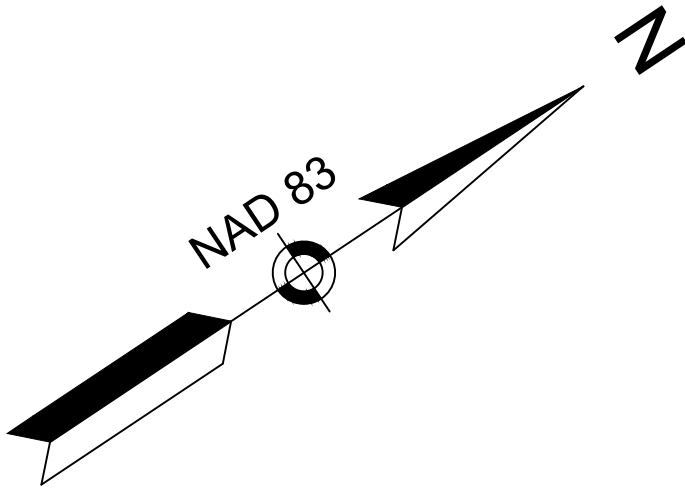
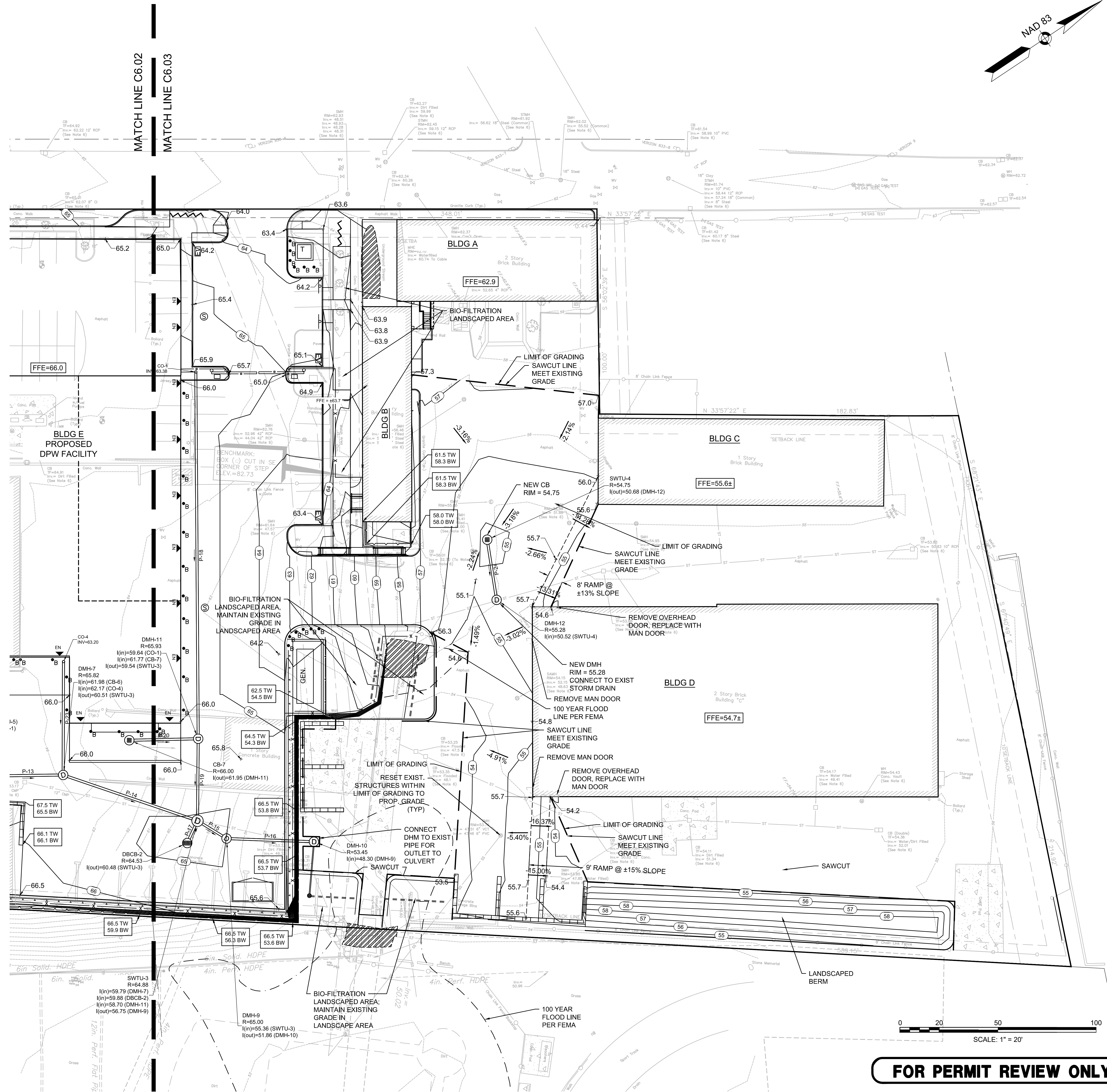
GRADING AND  
DRAINAGE PLAN  
- WEST

Sheet Number:

C602



LEGEND:  
100 YEAR FLOOD LINE PER FEMA  
REGULATORY FLOODWAY PER FEMA



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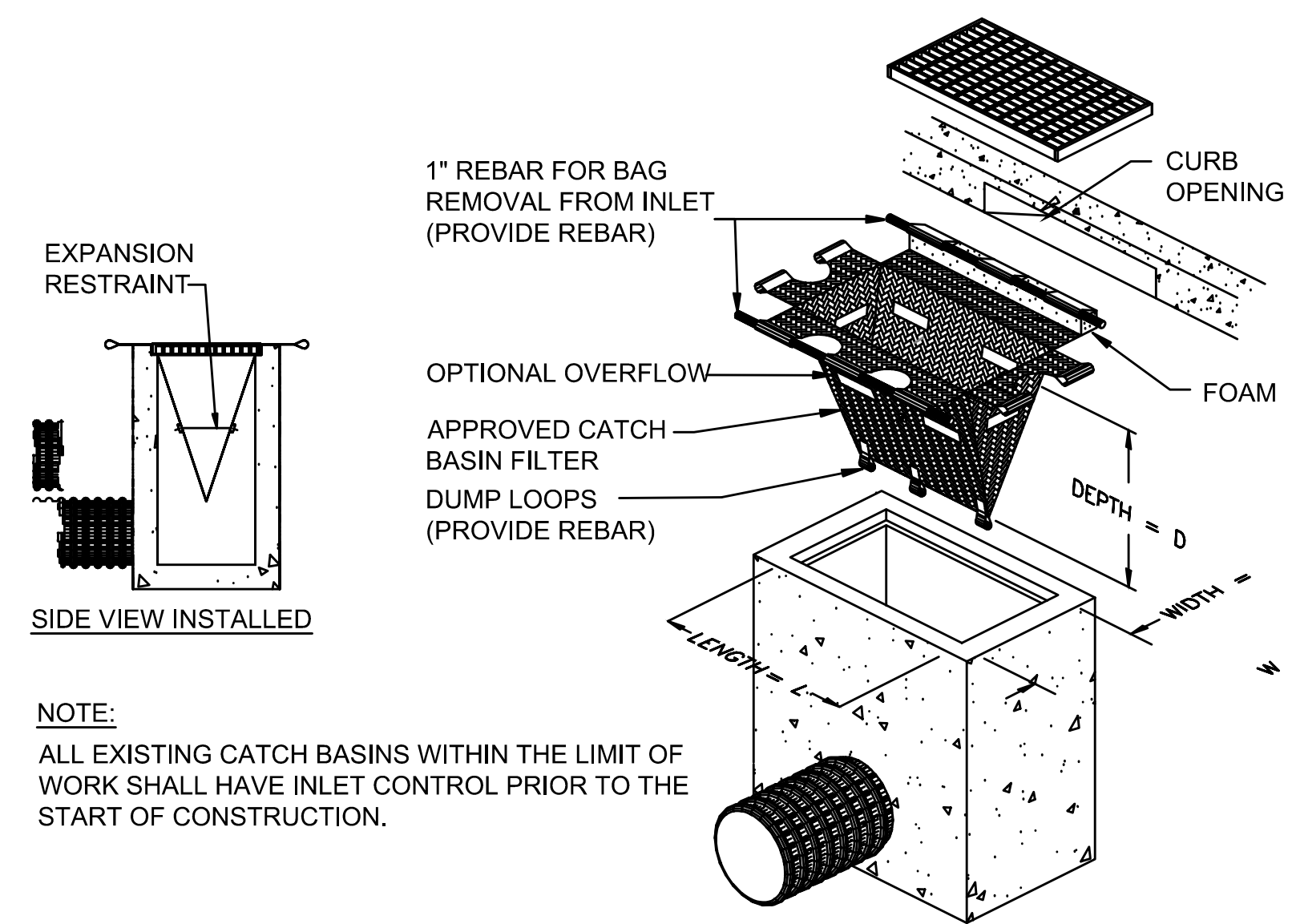
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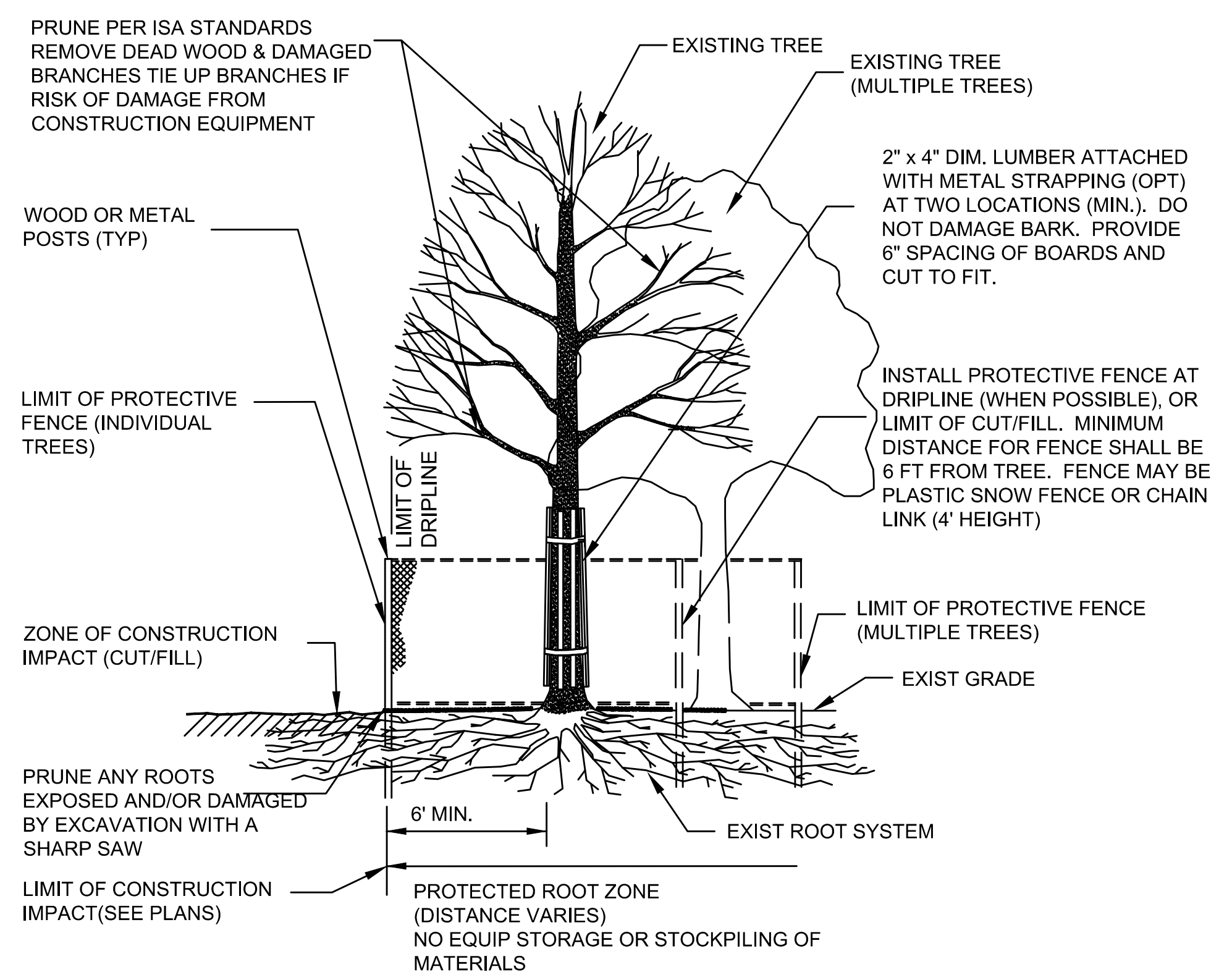
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GRADING AND DRAINAGE PLAN - EAST  
Sheet Number:

C603

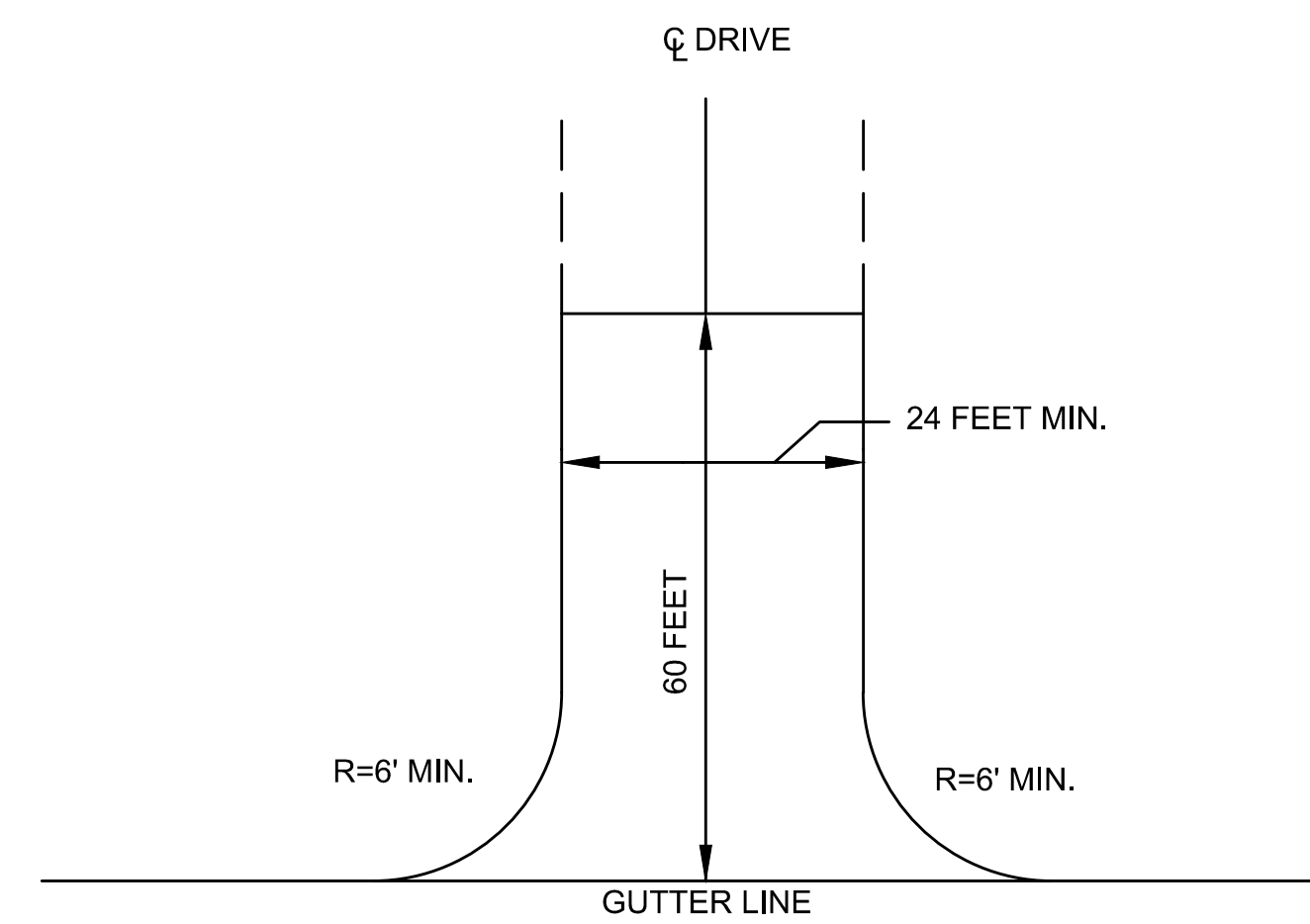




1 INLET SEDIMENT CONTROL  
SCALE: N.T.S.



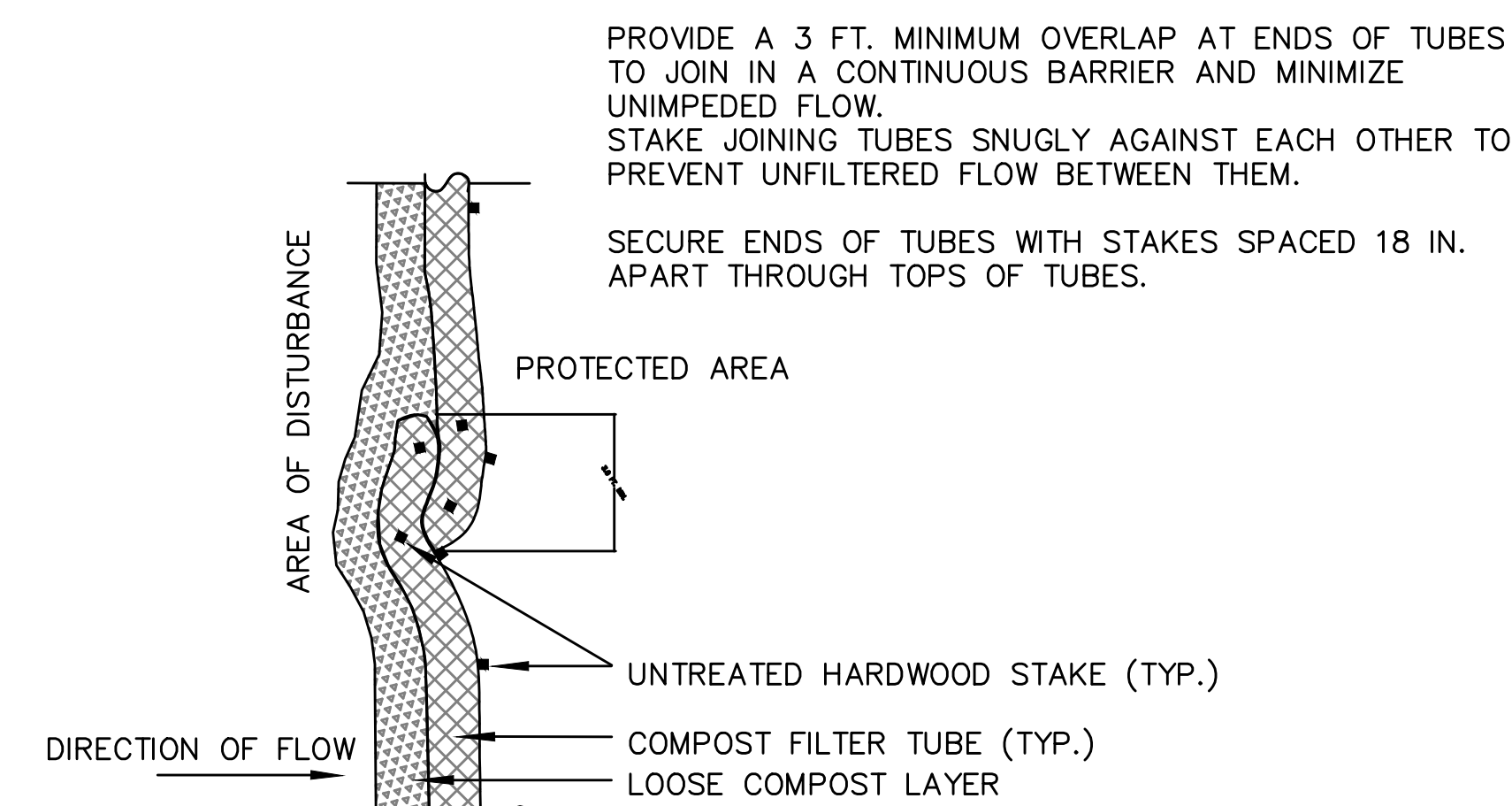
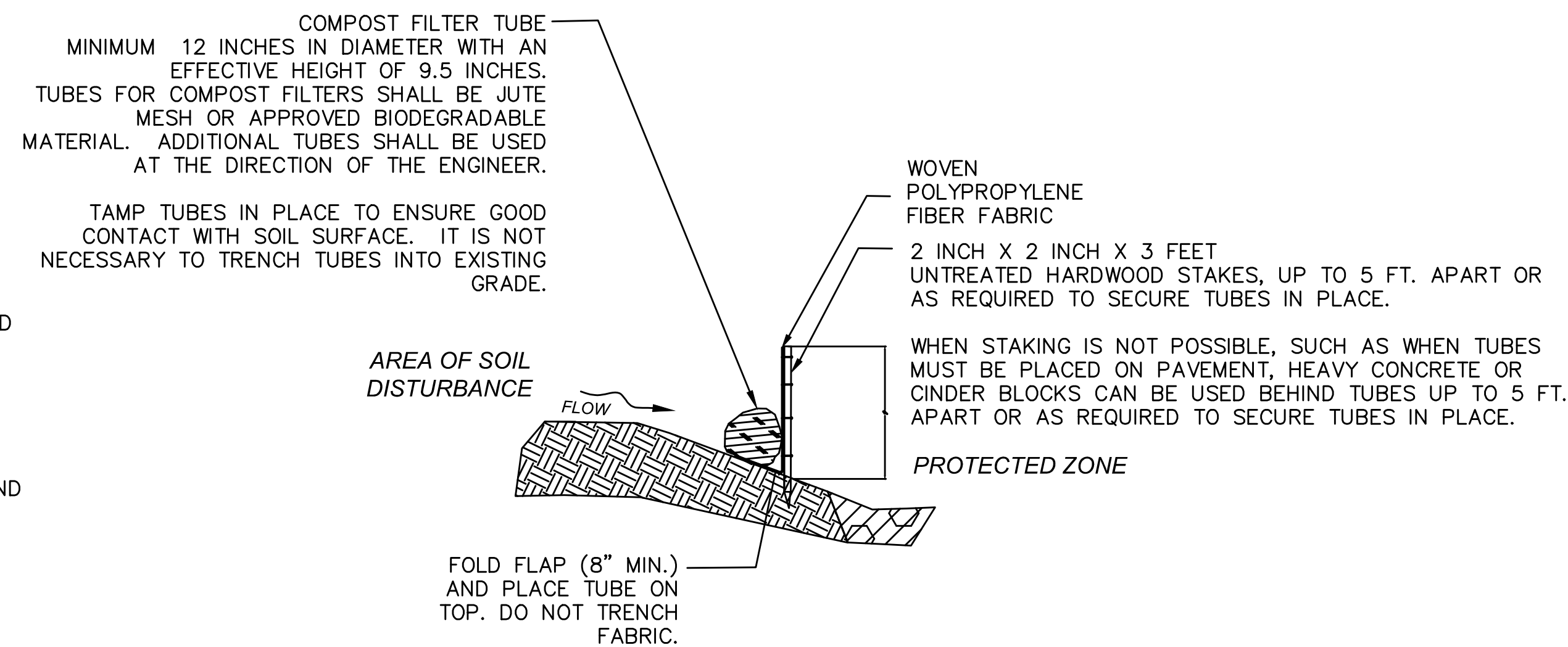
2 EXISTING TREE PROTECTION  
SCALE: N.T.S.



- NOTES:
- AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE PLACED AT EACH OF THE SITE, THROUGHOUT CONSTRUCTION.
  - THE LOCATION OF THE CONSTRUCTION ENTRANCE(S) SHALL BE APPROVED BY THE OWNER PRIOR TO PLACEMENT.
  - CONSTRUCTION ENTRANCE(S) SHALL CONSIST OF 2" CRUSHED STONE PLACED AT A DEPTH OF A MINIMUM 8 INCHES PLACED OVER GEOTEXTILE FABRIC.
  - CONTRACTOR IS RESPONSIBLE FOR CLEARING OF ALL VEGETATION, ROOTS AND ALL OBSTRUCTIONS IN PREPARATION FOR GRADING AND COMPACTING PRIOR TO PLACEMENT OF GEOTEXTILE FABRIC AND CRUSHED STONE.
  - CONTRACTOR IS RESPONSIBLE FOR DAILY INSPECTION AND ALL NECESSARY MAINTENANCE OF ALL ENTRANCES.
  - CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF SEDIMENTS OR ANY OTHER MATERIALS TRACKED ONTO THE STREET, AS WELL MAINTENANCE OF EROSION CONTROL MEASURES.
- 3 STABILIZED TEMPORARY CONSTRUCTION ENTRANCE  
SCALE: N.T.S.

GENERAL NOTES:

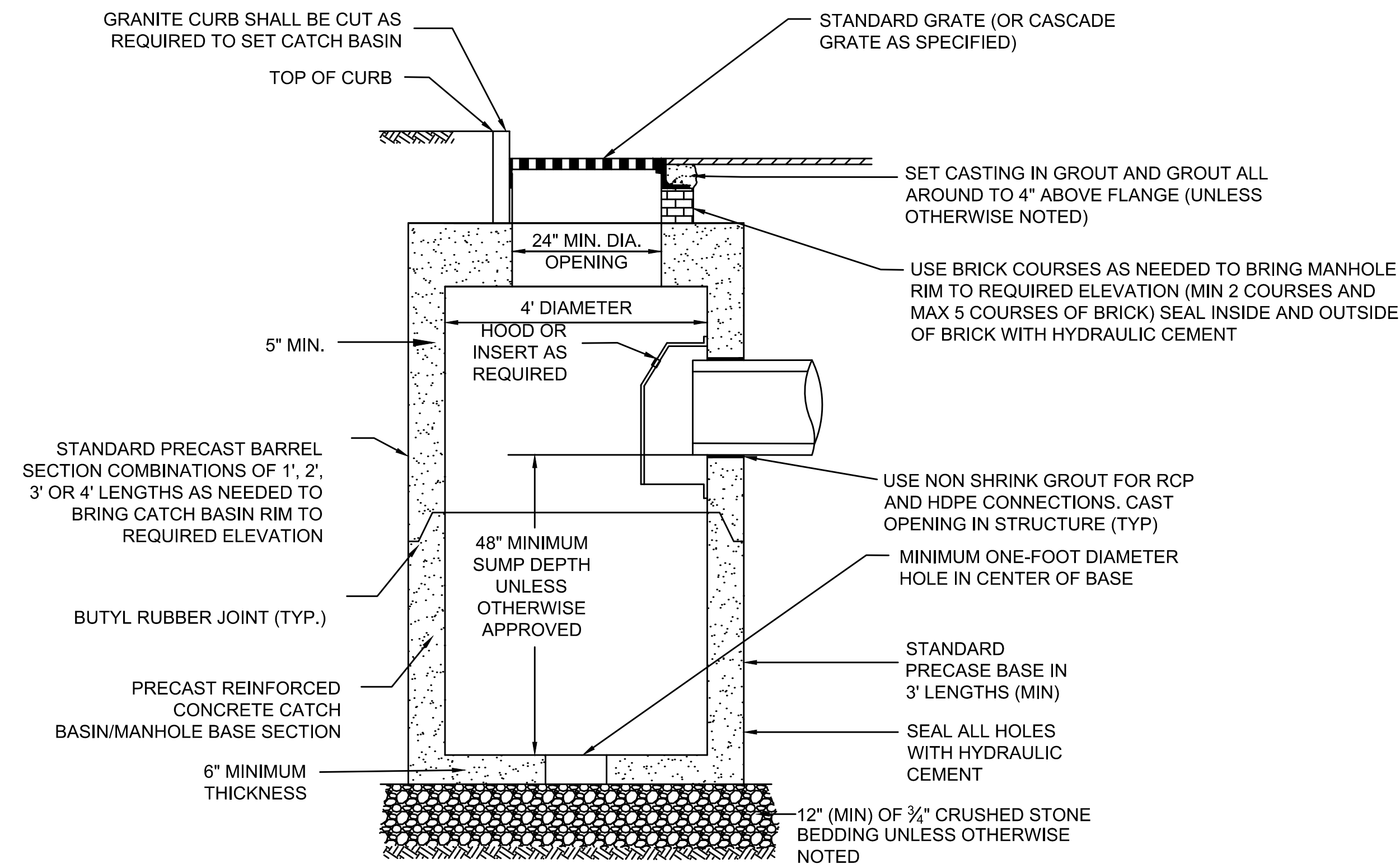
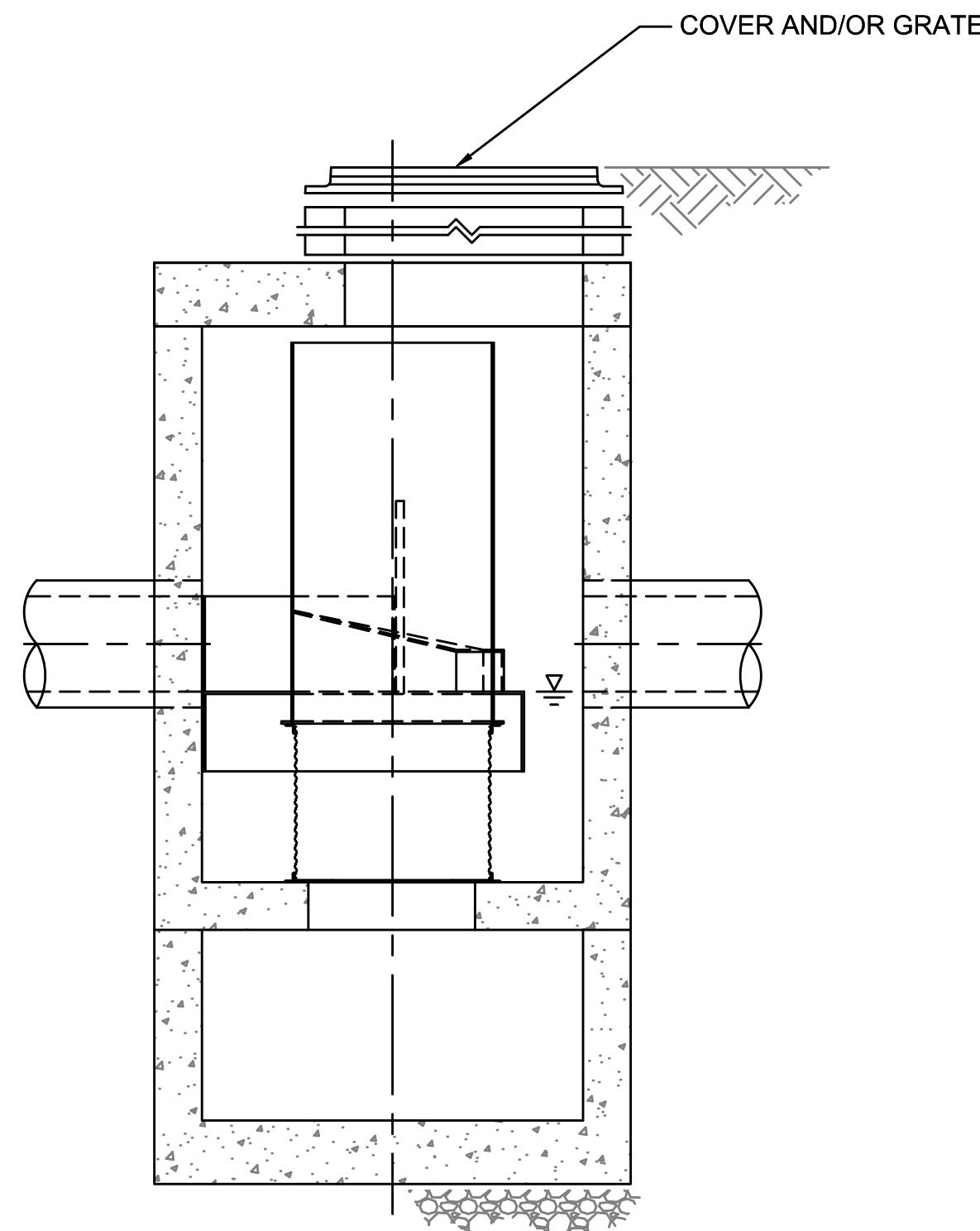
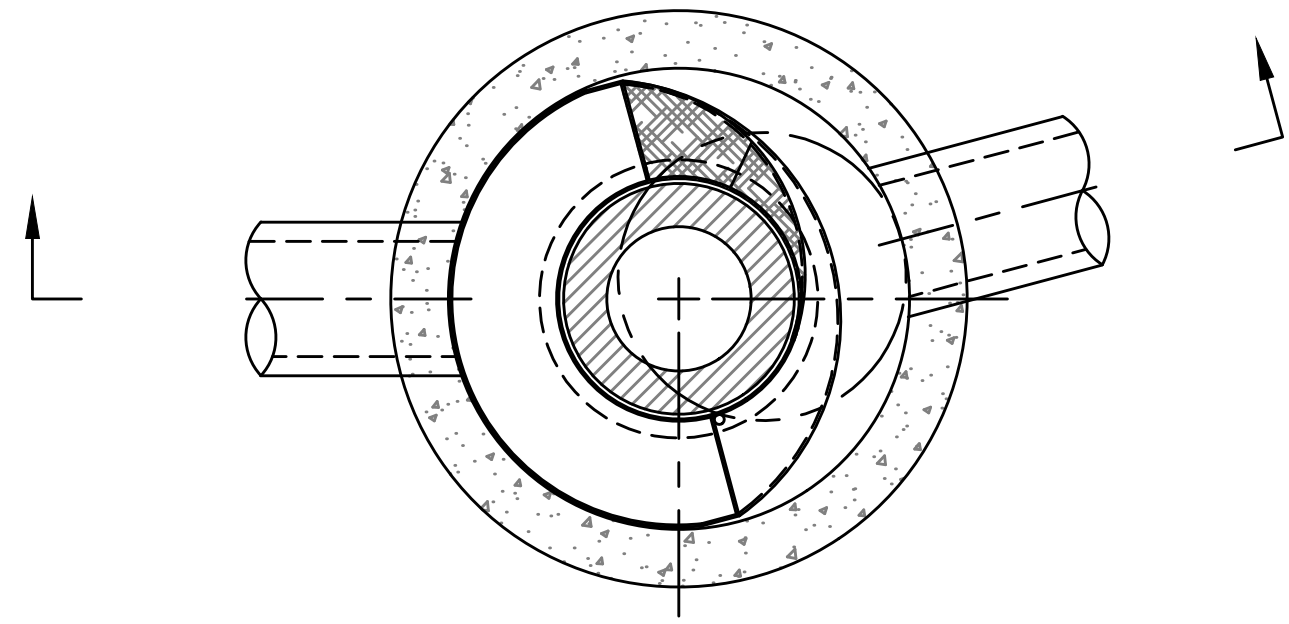
- PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
- INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
- DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
- CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.
- MULCH MATERIAL FOR THE FILTER TUBES SHALL BE WEED-FREE STRAW, WOOD EXCELSIOR, COMPOST, OR WOOD CHIPS, OR COIR. STRAW SHALL BE WEED FREE AND DERIVED FROM THRESHING OF GRAIN CROP.
- CURVE ENDS UPHILL TO PREVENT DIVERSION OF UNFILTERED RUN-OFF.



6 EROSION CONTROL MEASURE :SINGLE COMPOST FILTER TUBE WITH SILT FENCE DETAIL  
SCALE: N.T.S.

Rev	Date	Description





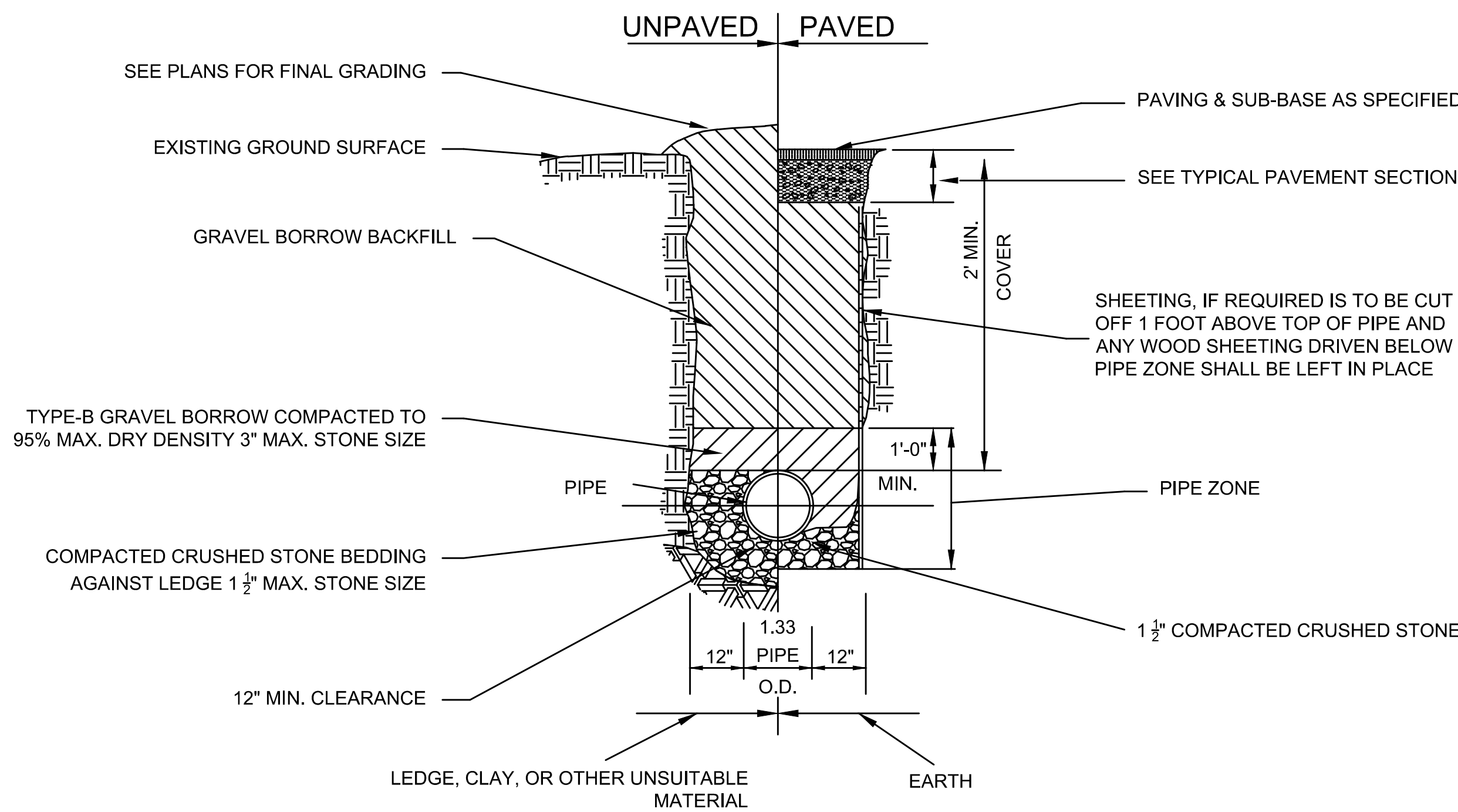
NOTE: FOR DOUBLE CATCH BASINS, STRUCTURE SHALL BE 6' IN DIAMETER.

NOTES:

- DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THE SPECIFICATIONS.
- STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET AASHTO M306 LOAD RATING.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE SWTU MANHOLE STRUCTURE.
- CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS BE GROUTED.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. SEE SHEET C601-C603 FOR LOCATION, MATERIAL AND INVERT DATA.
- STORMWATER TREATMENT STRUCTURE SHALL BE STORMCEPTOR STC 450 OR APPROVED EQUAL.

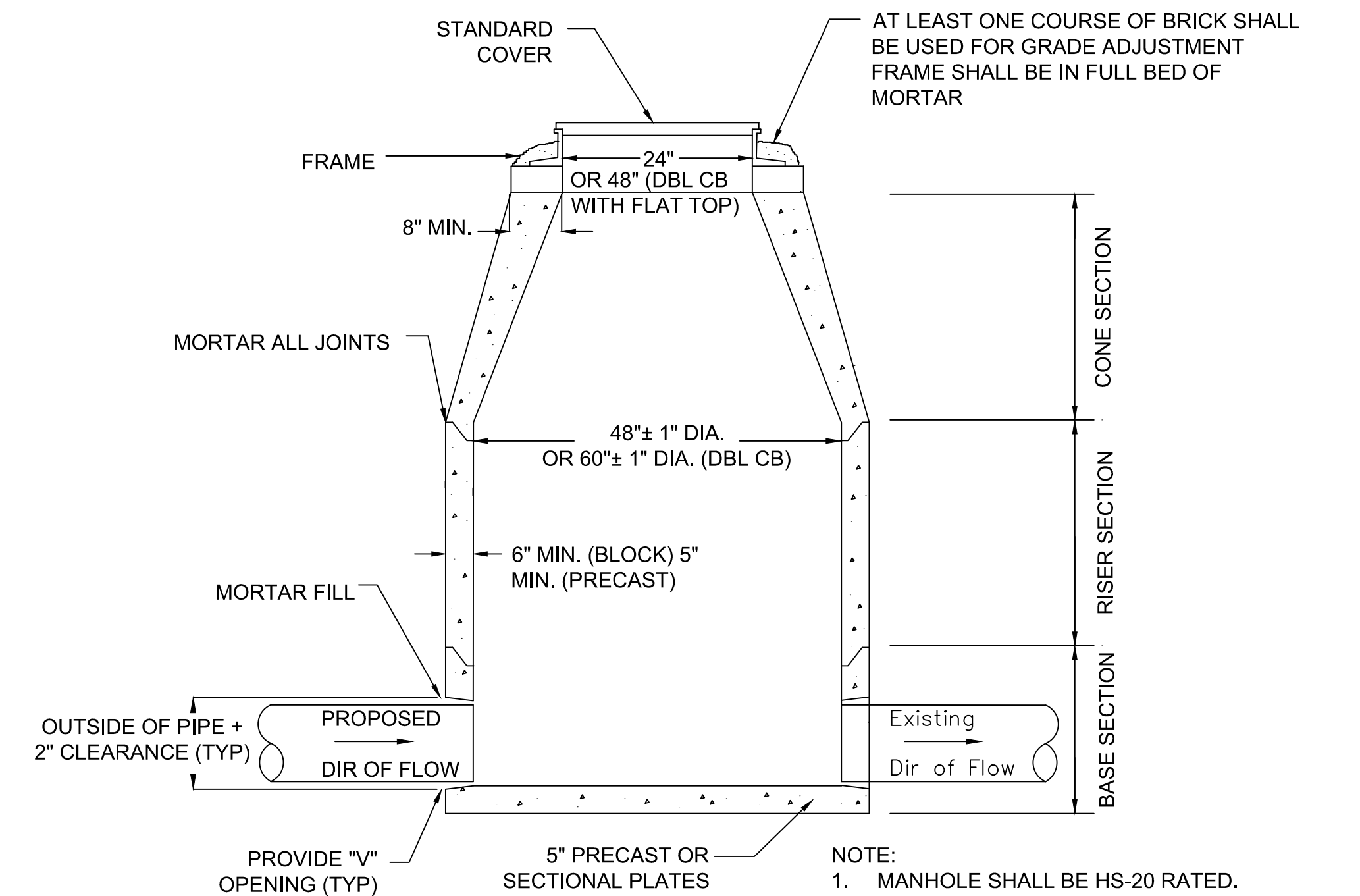
1 STORMWATER TREATMENT UNIT (SWTU)

SCALE: N.T.S.



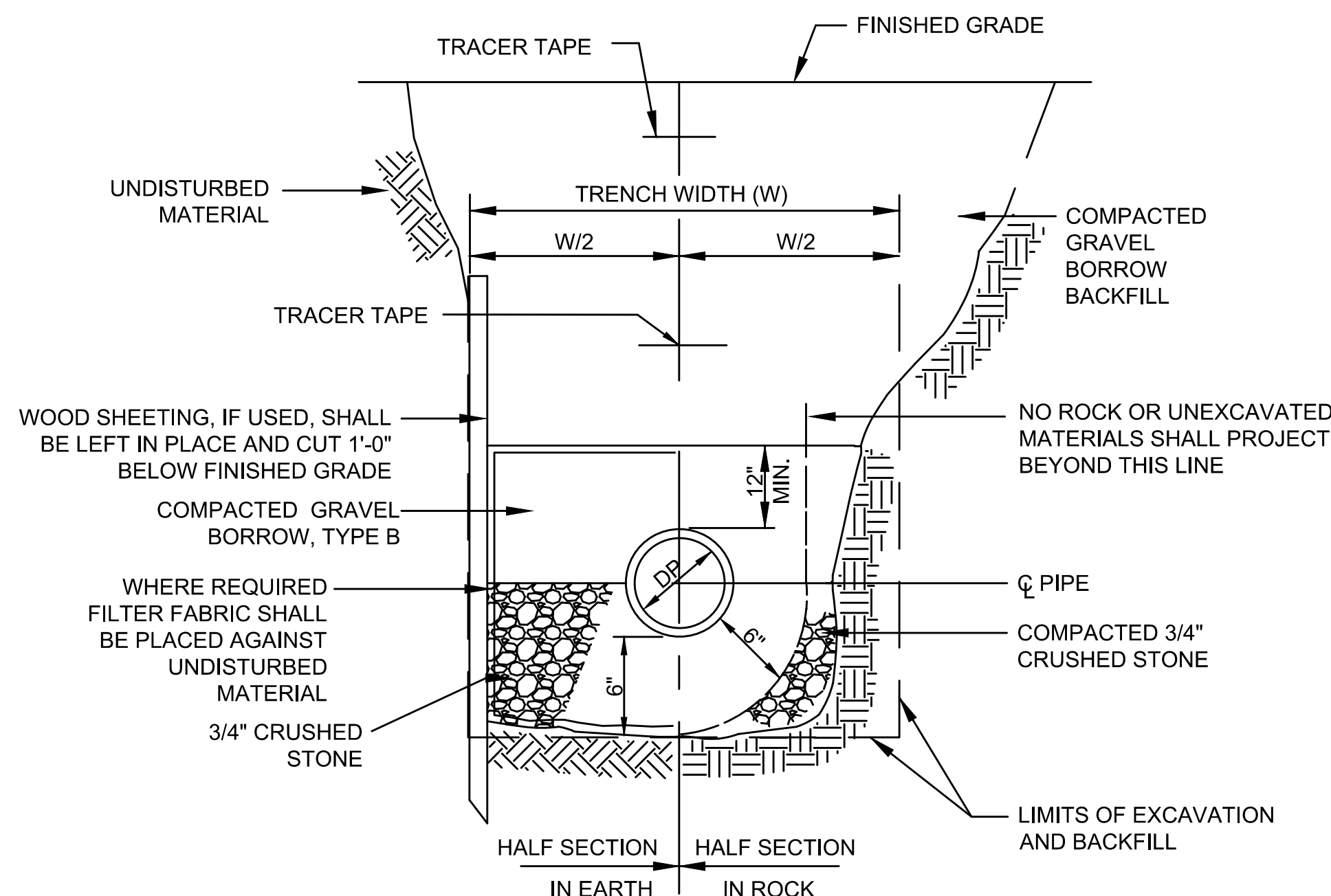
3 TYPICAL H.D.P.E DRAIN TRENCH DETAIL

SCALE: N.T.S.



6 STANDARD DRAINAGE MANHOLE

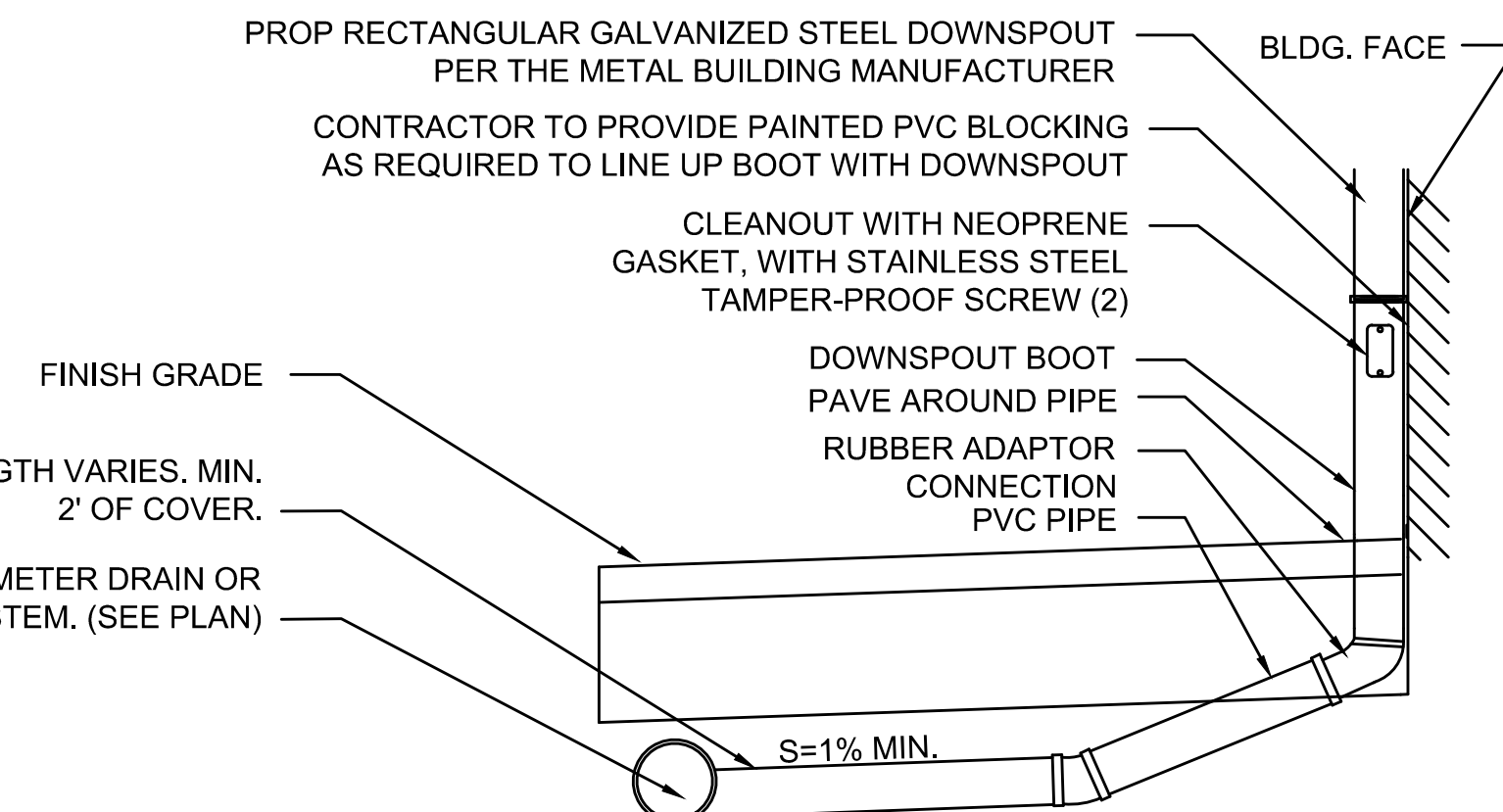
SCALE: N.T.S.



7 SEWER TRENCH DETAIL

SCALE: N.T.S.

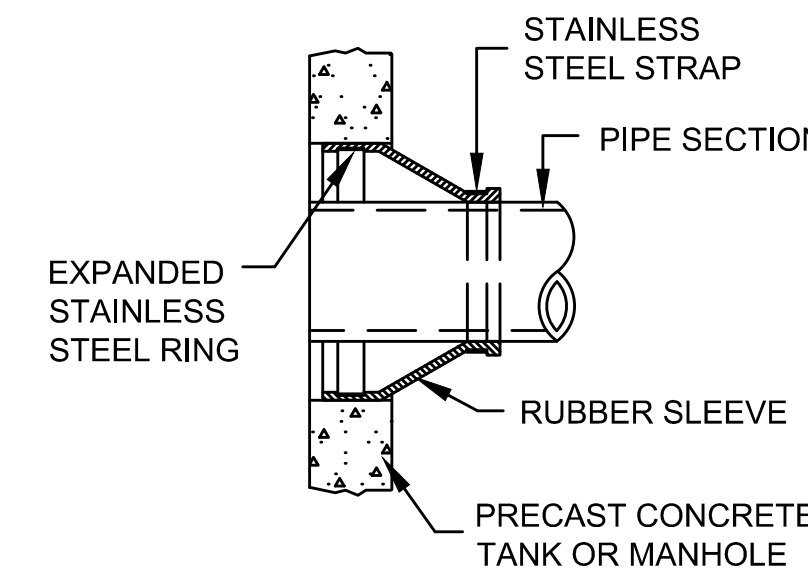
DEPTH TO INVERT	DIAMETER OF PIPE (DP)	MAX. TRENCH WIDTH BELOW LINE OF NARROW TRENCH LIMIT (SHEETED OR UNSHEETED) (W)
0-12'	TO 4"	5'-0"



- NOTE:
- DOWNSPOUT DETAIL IS TYPICAL FOR ALL BUILDING GUTTER DOWNSPOUTS.
  - REFER TO ARCHITECTURAL PLANS FOR EXACT QUANTITY & LOCATION.
  - COORDINATE WITH CIVIL SITE PLANS FOR CONNECTIONS TO STORM SYSTEM.
  - PROVIDE A DOWNSPOUT BOOT AT EACH DOWNSPOUT TO ALLOW THE RECTANGULAR DOWNSPOUT TO TRANSITION TO THE ROUND RECEPTOR PIPE.
  - PAINT DOWNSPOUT ADAPTER BY PAINTING SUBCONTRACTOR. COLOR AS SELECTED BY THE ENGINEER.
  - DOWNSPOUT ADAPTER SHALL BE MANUFACTURED BY PIEDMONT MANUFACTURING OR APPROVED EQUAL.

5 GUTTER DOWNSPOUT CONNECTION DETAIL (EXTERNAL)

SCALE: N.T.S.



8 PIPE SEAL DETAIL

SCALE: N.T.S.

Consultants:



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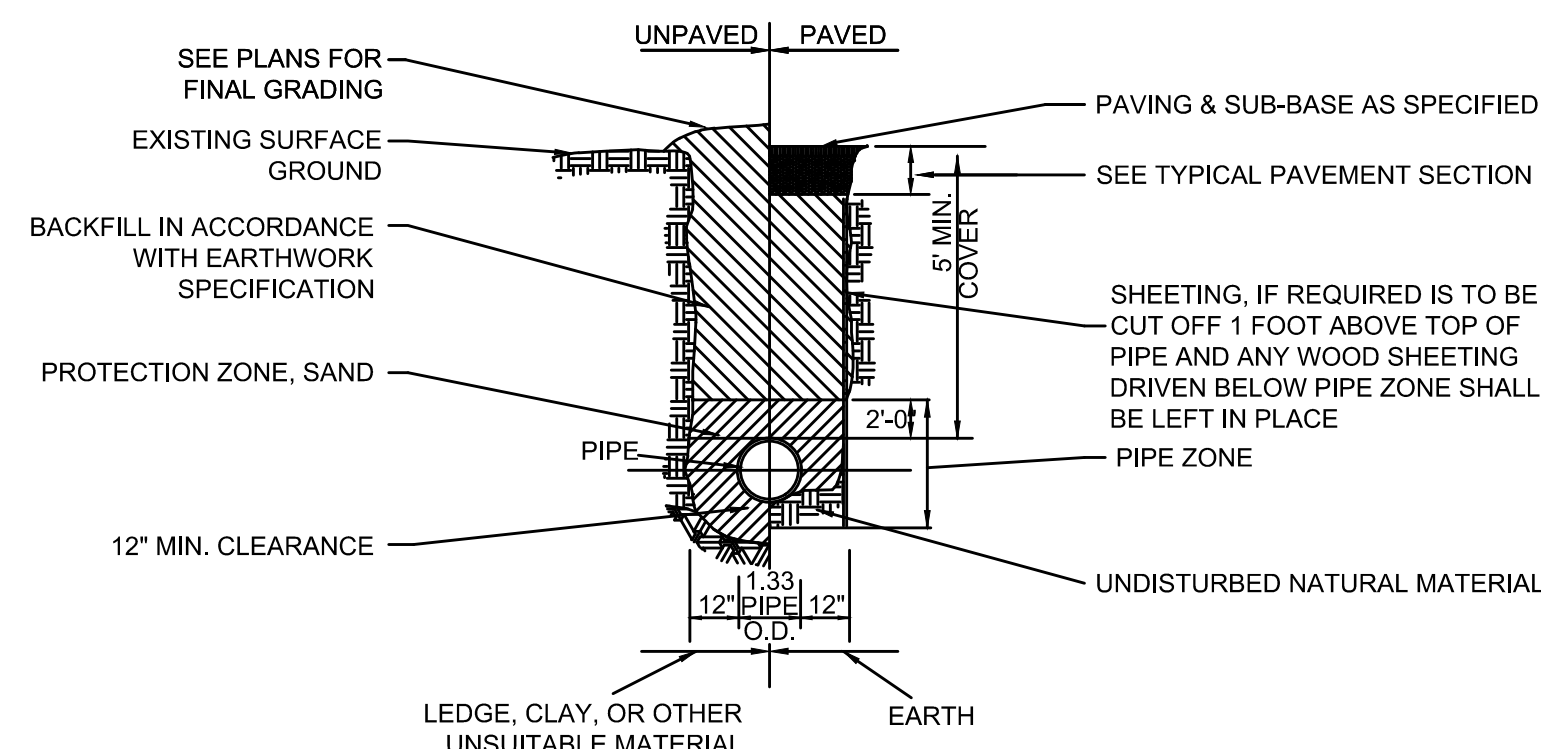
DETAILS

Sheet Number:

C802

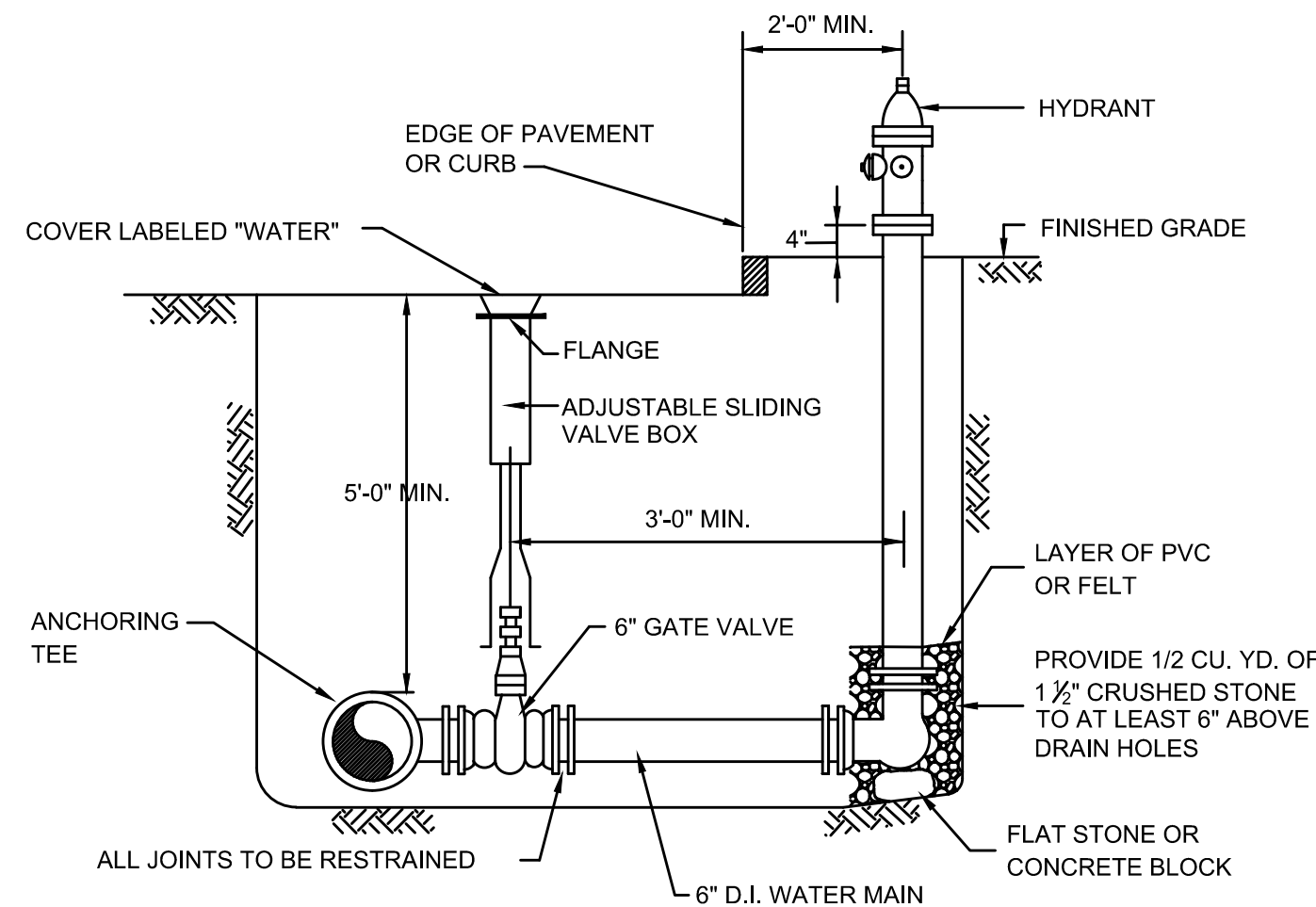
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1 TYPICAL WATER TRENCH DETAIL

SCALE: N.T.S.

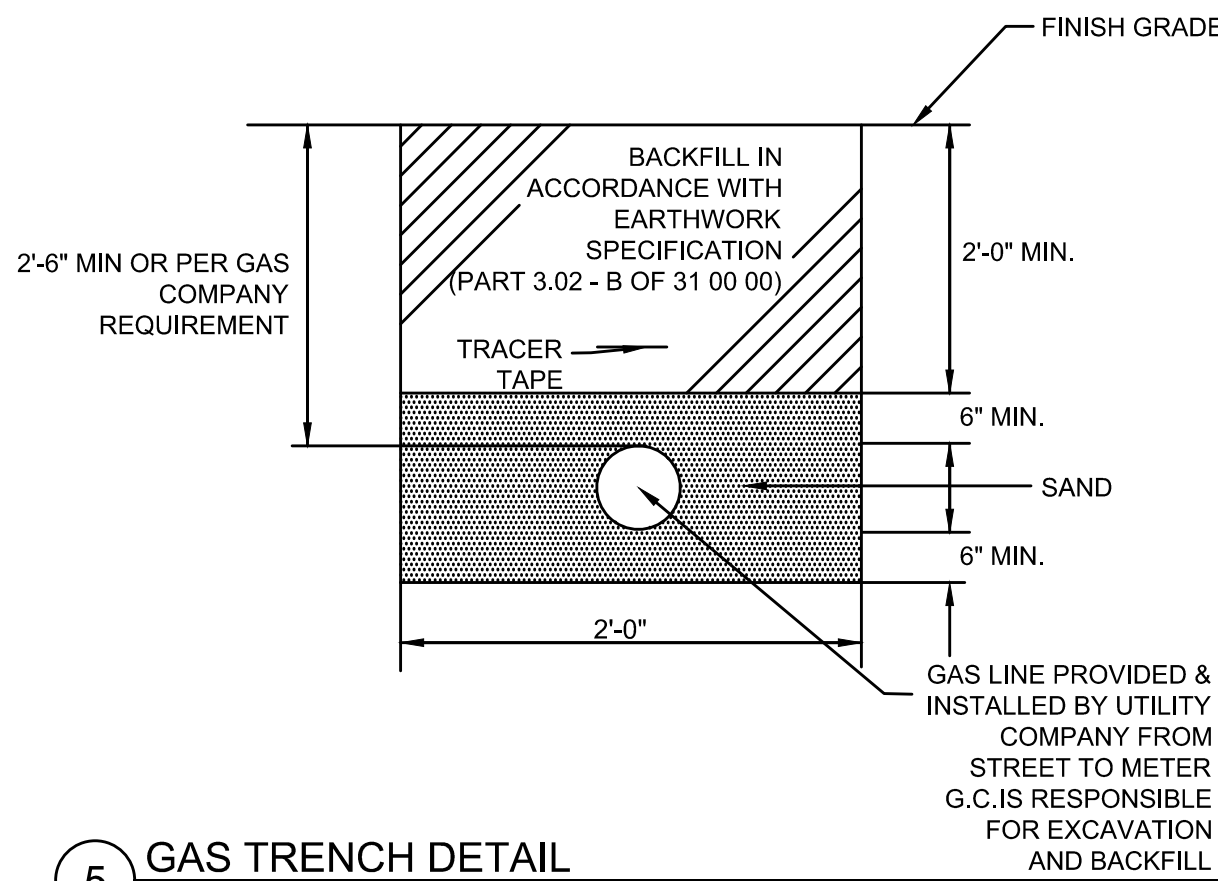


NOTES:

1. HYDRANT GATE VALVE TO BE LOCATED WITHIN ROADWAY PAVEMENT WHERE POSSIBLE.
2. GATES VALVES SHALL BE AWWA RESILIENT SEAT GATE VALVES.
3. USE TWO 6" BENDS OR OFFSET ON LATERAL TO ACHIEVE REQUIRED HYDRANT ELEVATION IF NECESSARY.

3 HYDRANT AND VALVE DETAIL

SCALE: N.T.S.

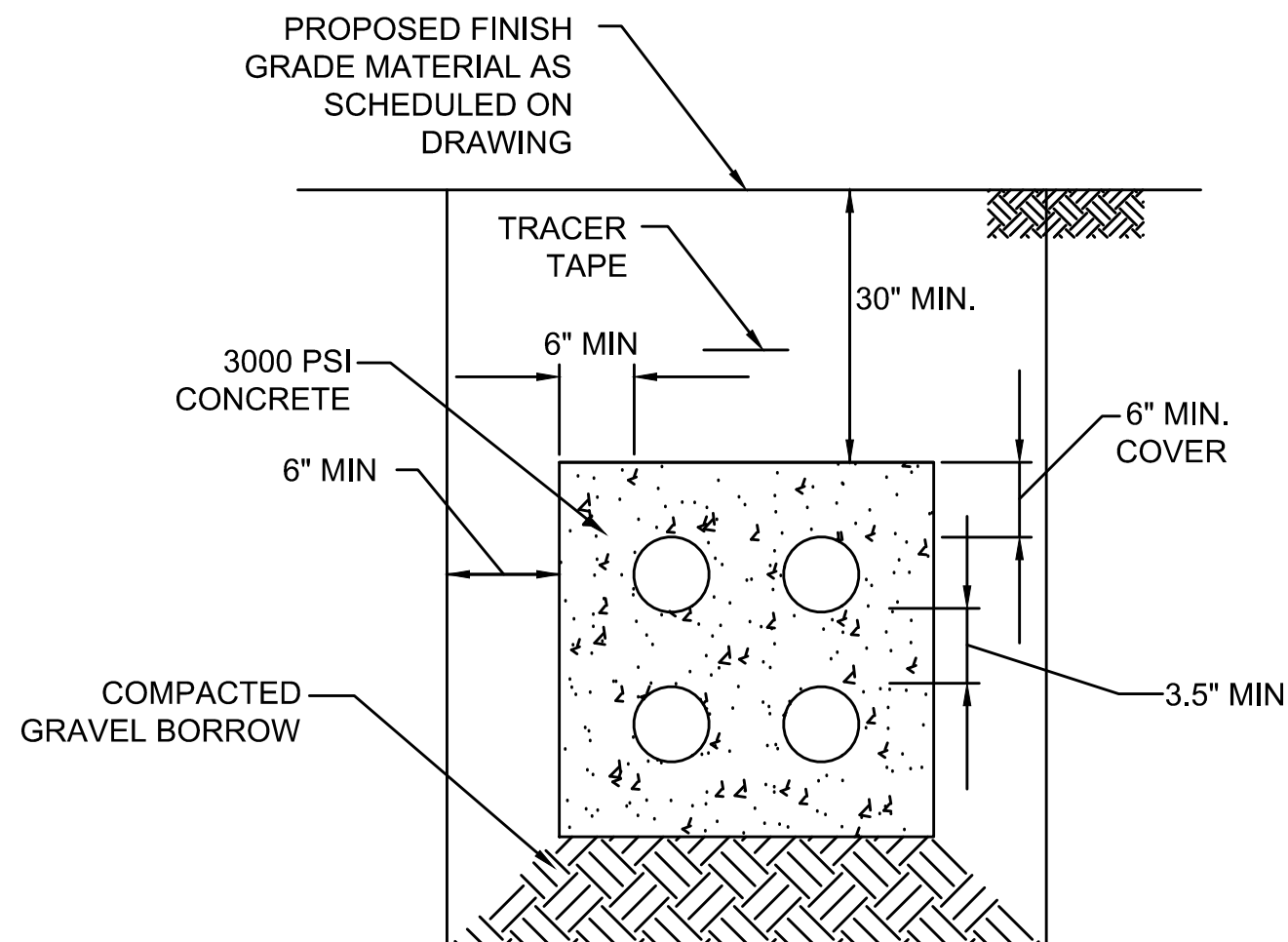


5 GAS TRENCH DETAIL

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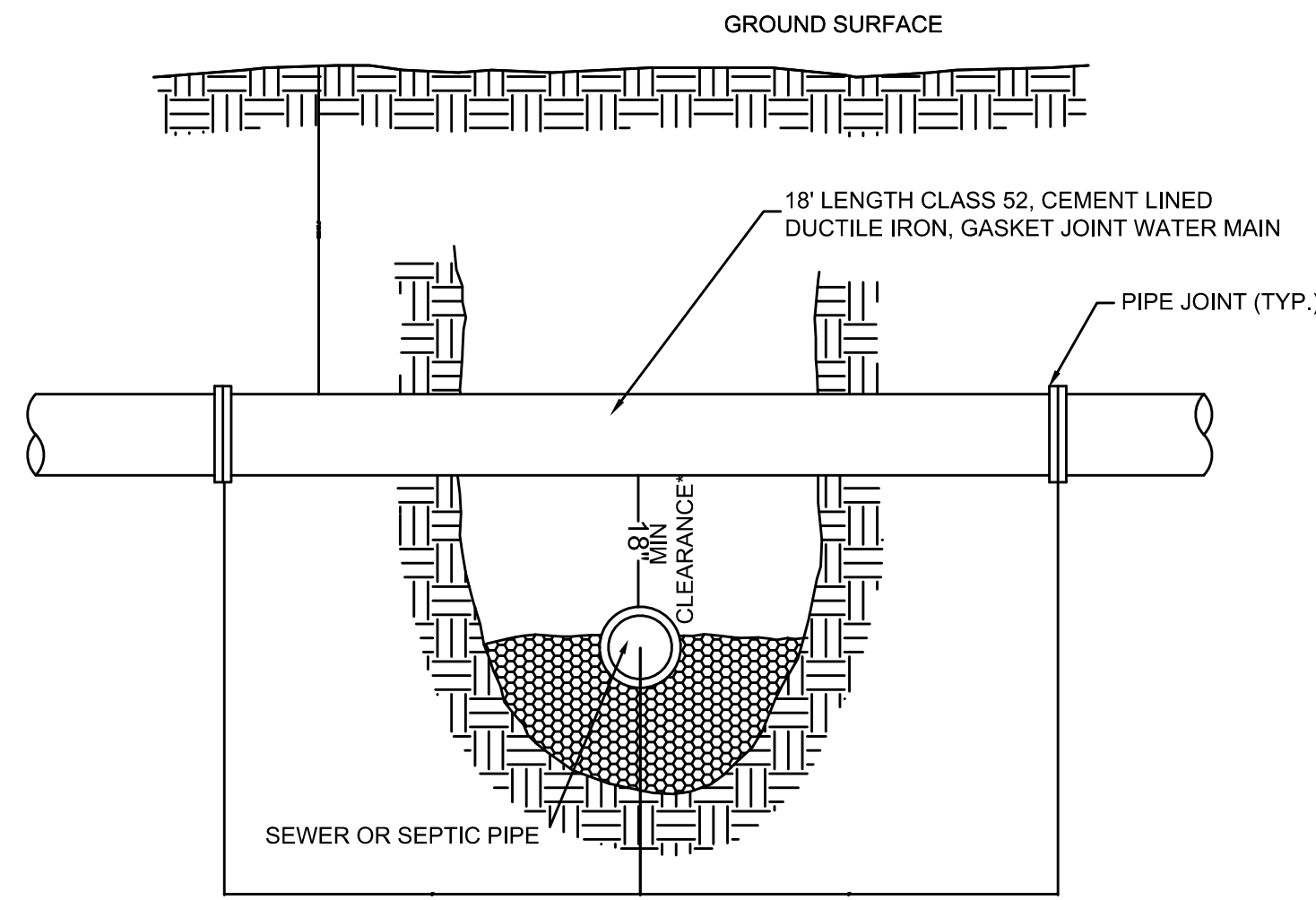
NOTES:

1. G.C. IS RESPONSIBLE FOR EXCAVATION, CONCRETE ENCASEMENT, REINFORCEMENT AND BACKFILL. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING THE CONDUITS & SPACERS.
2. PROVIDE REINFORCEMENT PER LOCAL UTILITY COMPANY REQUIREMENTS. REFER TO E501 FOR DETAILS.
3. QUANTITY & SIZE OF CONDUITS VARY. DUCTBANK SIZE SHALL BE ADJUSTED BASED ON CONDUIT TYPES & SIZES IDENTIFIED ON THE E-SERIES DRAWINGS.
4. CONTRACTOR SHALL COORDINATE DEPTH OF PROPOSED DUCTBANK WITH PROPOSED UTILITY & DRAINAGE SYSTEMS TO AVOID CONFLICTS.
5. BACKFILL AROUND DUCTBANK WITH GRAVEL BORROW BACKFILL MATERIAL.



7 ELECTRIC/COMMUNICATION DUCTBANK DETAIL

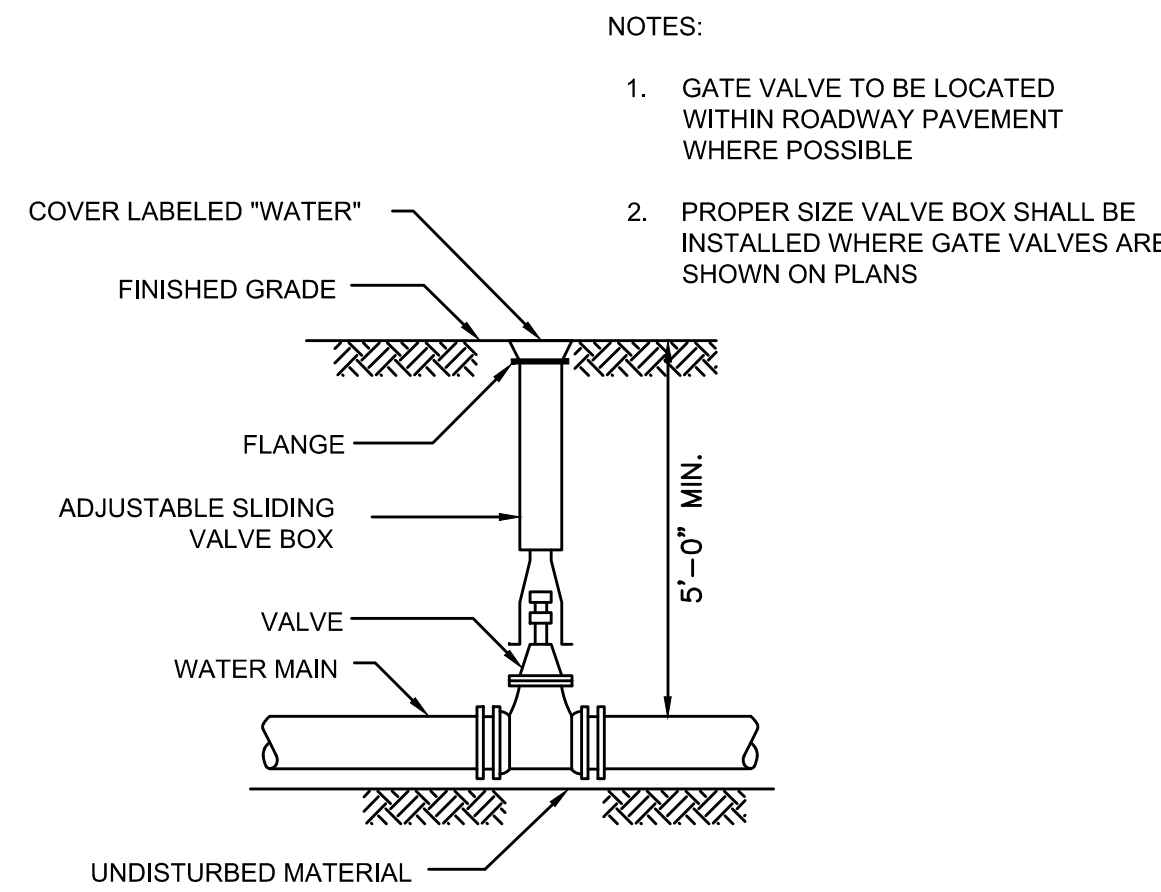
SCALE: N.T.S.



"WHEN THE CROSSING AS SHOWN IS LESS THAN 18" VERTICAL CLEARANCE THE UTILITY BEING INSTALLED MUST BE SLEEVED 10' ON BOTH SIDES OF THE CROSSING WITH SDR35 PVC PIPE. IF THE SEWER MAIN OR SERVICE CROSSES ABOVE THE WATER MAIN OR SERVICE, AGAIN THE UTILITY BEING INSTALLED MUST BE SLEEVED 10' ON BOTH SIDES OF THE CROSSING WITH SDR35 PVC PIPE."

2 TYPICAL WATER CROSSING

SCALE: N.T.S.

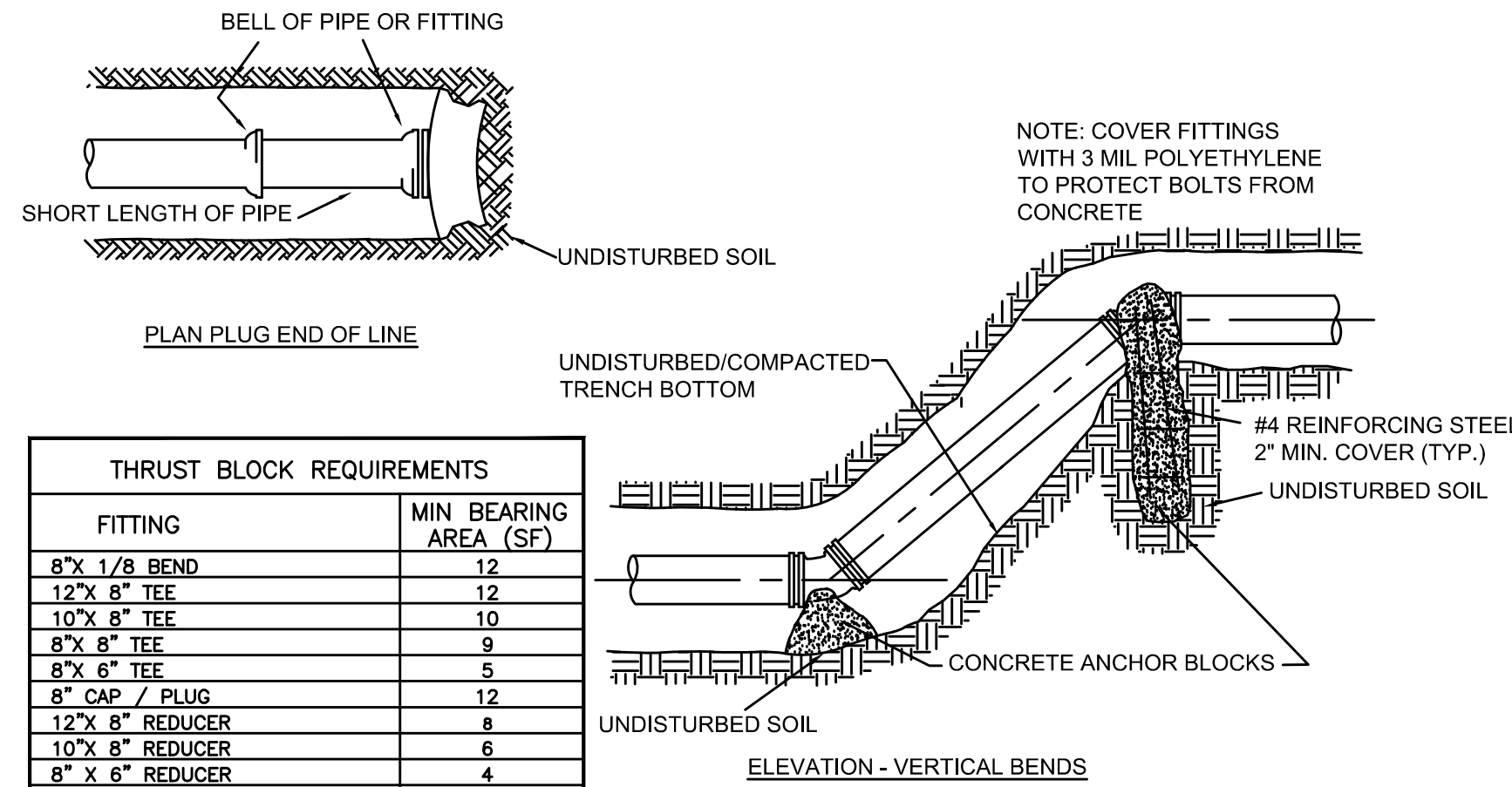


NOTES:

1. GATE VALVE TO BE LOCATED WITHIN ROADWAY PAVEMENT WHERE POSSIBLE
2. PROPER SIZE VALVE BOX SHALL BE INSTALLED WHERE GATE VALVES ARE SHOWN ON PLANS

4 VALVE AND BOX DETAIL

SCALE: N.T.S.



THRUST BLOCK REQUIREMENTS	
FITTING	MIN BEARING AREA (SF)
8" X 1/8 BEND	12
12" X 8" TEE	12
10" X 8" TEE	10
8" X 8" TEE	9
8" X 6" TEE	5
8" CAP / PLUG	12
12" X 8" REDUCER	4
10" X 8" REDUCER	6
8" X 8" REDUCER	4
8" 22 1/2" & 45° BENDS	8
ALL TEES AND VALVES	10
HYDRANTS	9

6 ANCHORAGE DETAILS

SCALE: N.T.S.

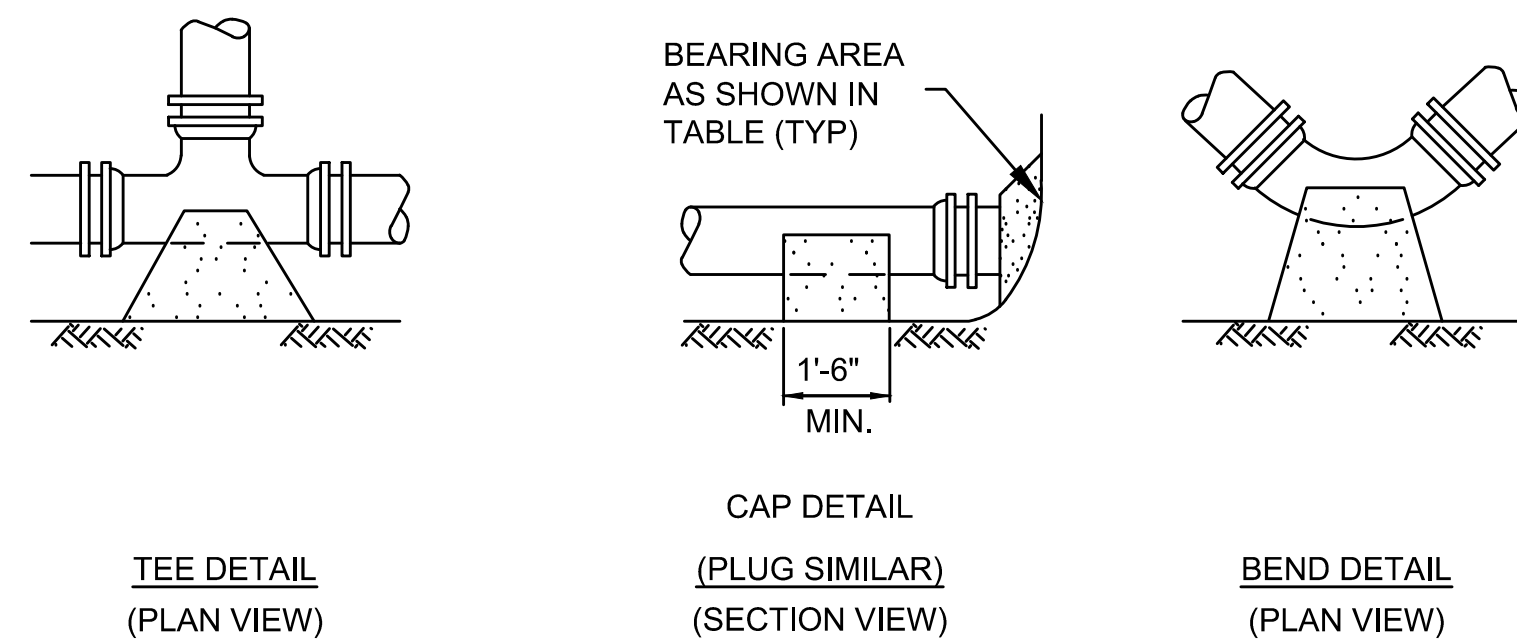


TABLE OF CONCRETE THRUST RESTRAINT MINIMUM BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR WATER MAIN FITTINGS				
SIZE OF MAIN	90° BENDS, TEES, CAPS AND PLUGS	45° BENDS AND WYES	22-1/2° BENDS	11-1/4° BENDS
6", 8"	5	4	2	2
10", 12"	12	9	5	2
16"	20	15	8	4
20"	36	24	13	7

1. ALL WATER MAIN FITTINGS SHALL HAVE CONCRETE BACKING FOR
2. CONTRACTOR SHALL USE CARE TO AVOID PLACEMENT OF

8 CONCRETE THRUST RESTRAINT FOR FITTINGS

SCALE: N.T.S.

Project:

TOWN OF ARLINGTON



PUBLIC WORKS FACILITY RENOVATIONS & ADDITION  
51 GROVE STREET  
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Seal:



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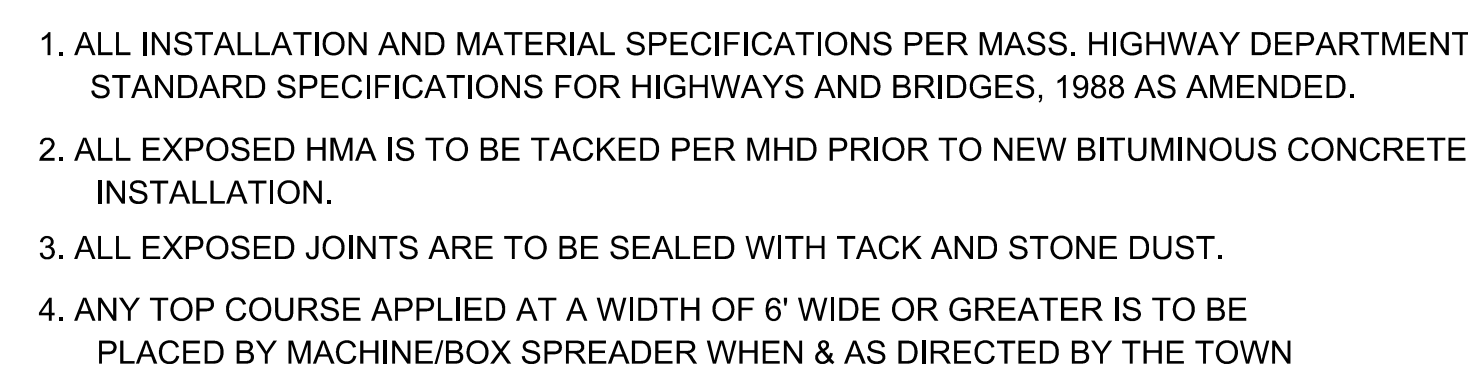




1. PROVIDE PRE MOLDED EXPANSION JOINTS AT MIN. 30' O.C.
2. PROVIDE TOOLED DUMMY JOINTS AT 4' O.C. (MIN. 1" DEPTH)
3. BROOM FINISH PATTERN



HEAVY DUTY	2" SURFACE COURSE
TRAFFIC AREAS:	3" BINDER COURSE
	12" DENSE GRADED CRUSHED STONE
LIGHT DUTY	1.5" SURFACE COURSE
TRAFFIC AREAS:	2" BINDER COURSE
	10" DENSE GRADED CRUSHED STONE



1. CONCRETE FOOTING SIZE SHALL BE DESIGNED BY MANUFACTURER.
2. GATE OPENING WIDTHS SHALL BE 35 FEET.

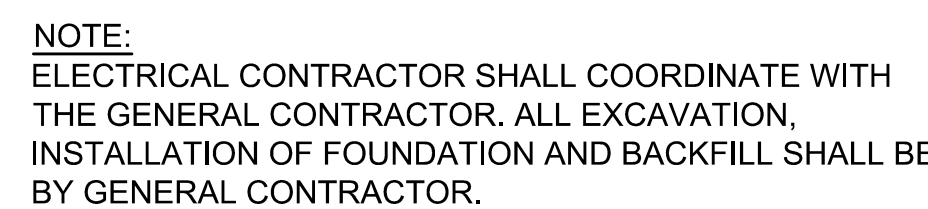
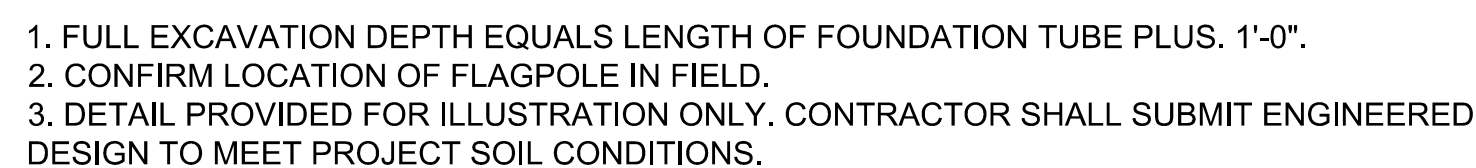
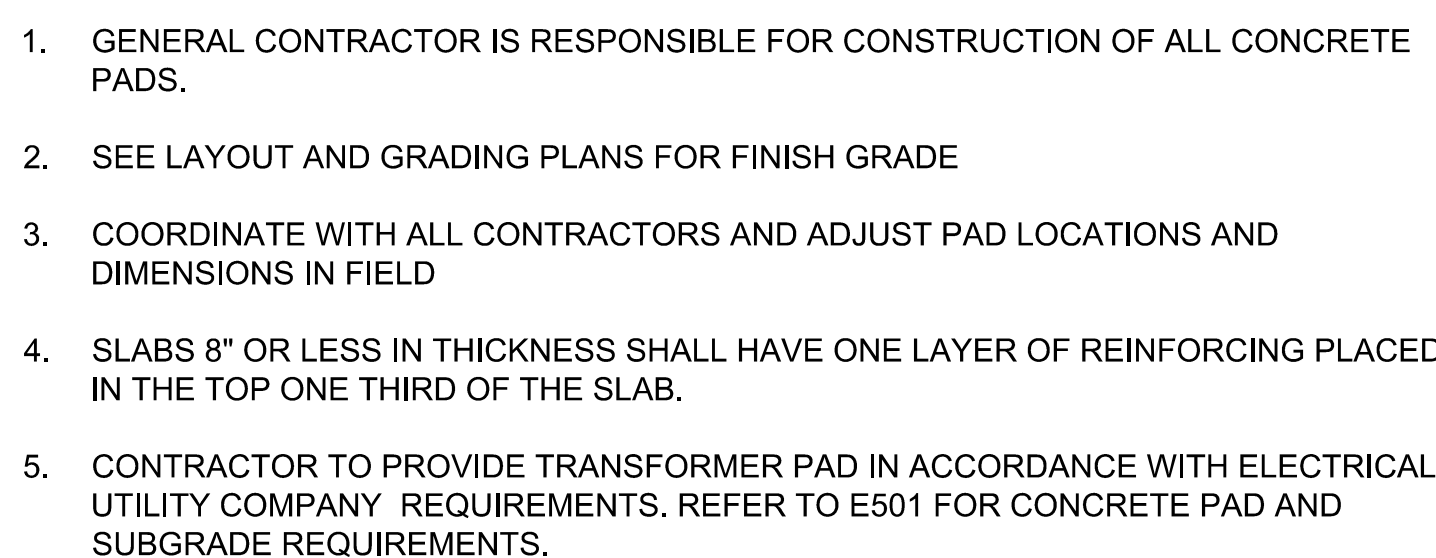
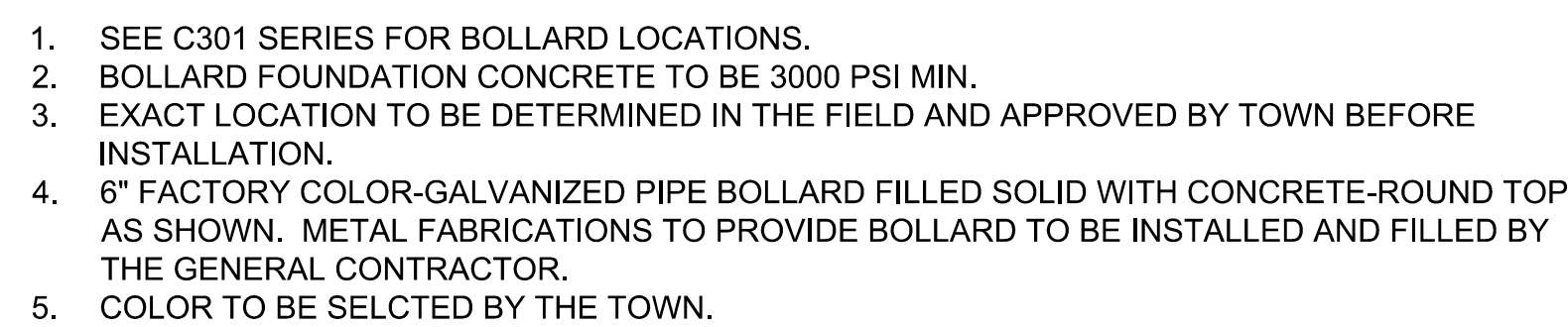
1. ALL FENCE PIPE SHALL BE SCH. 40, VINYL CLAD HOT DIP GALV. STEEL PIPE.
2. ALL LINE POSTS SHALL BE INSTALLED EQUALLY SPACED BETWEEN END & CORNER POSTS.
3. ALL RAILS SHALL BE 1.66" O.D. PIPE
4. ALL CLAMPS, TIES, POST TOPS, BANDS, POSTS, ETC. SHALL BE VINYL CLAD TO MATCH FABRIC.

7 SINGLE CANTILEVERED SLIDING GATE DETAIL (BLACK VINYL)  
SCALE: N.T.S.

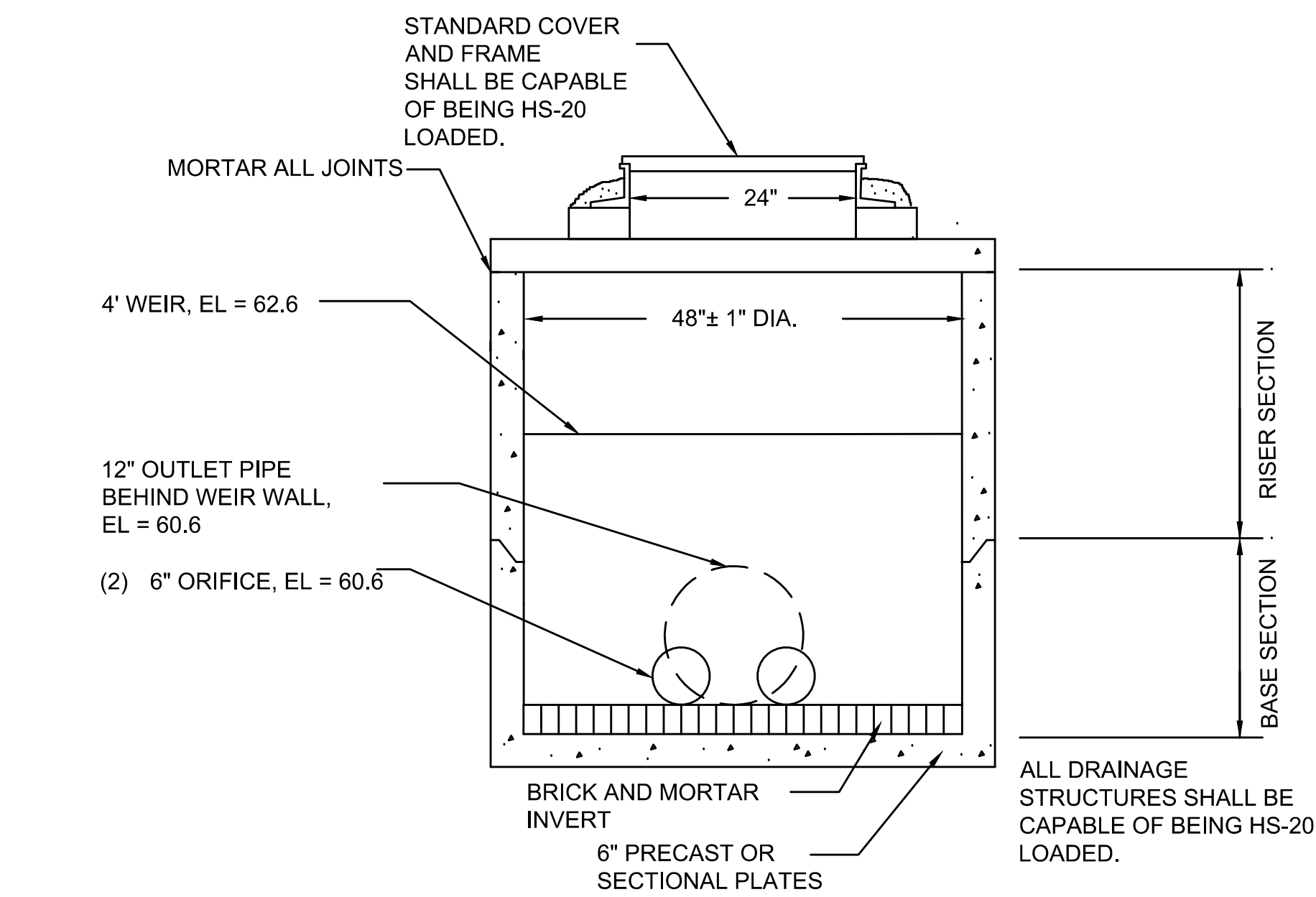
7 CHAIN LINK FENCE  
SCALE: N.T.S.

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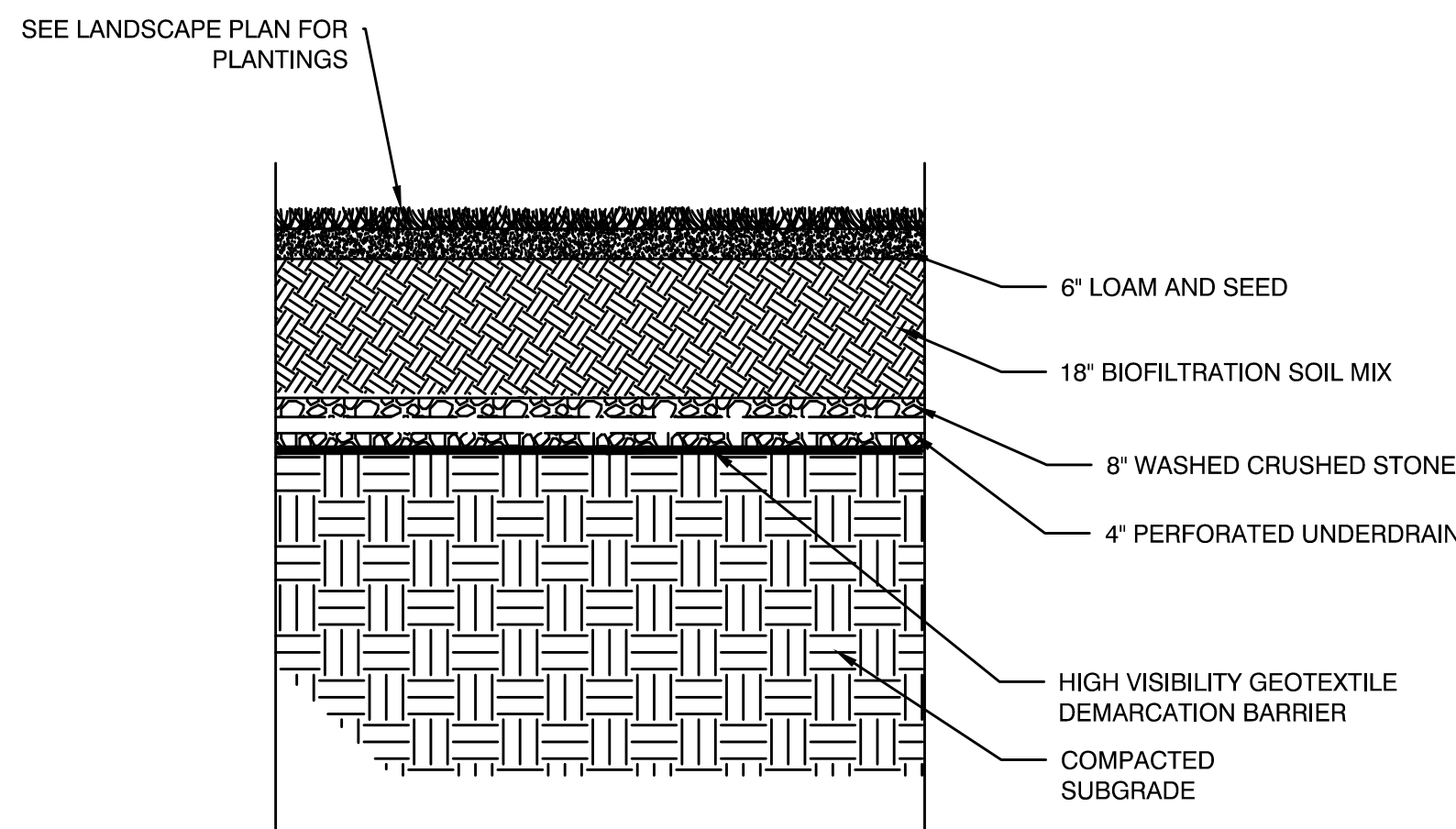




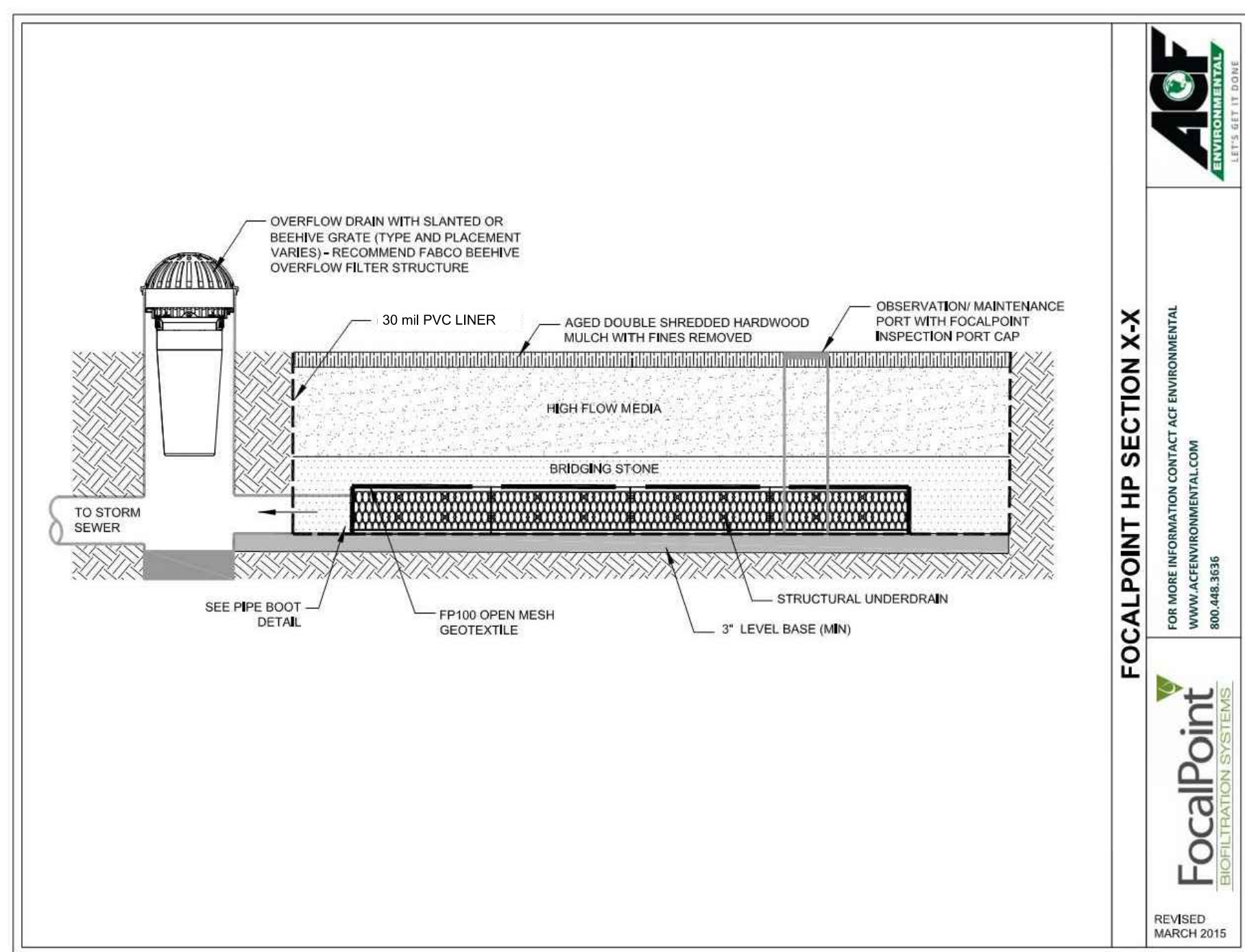




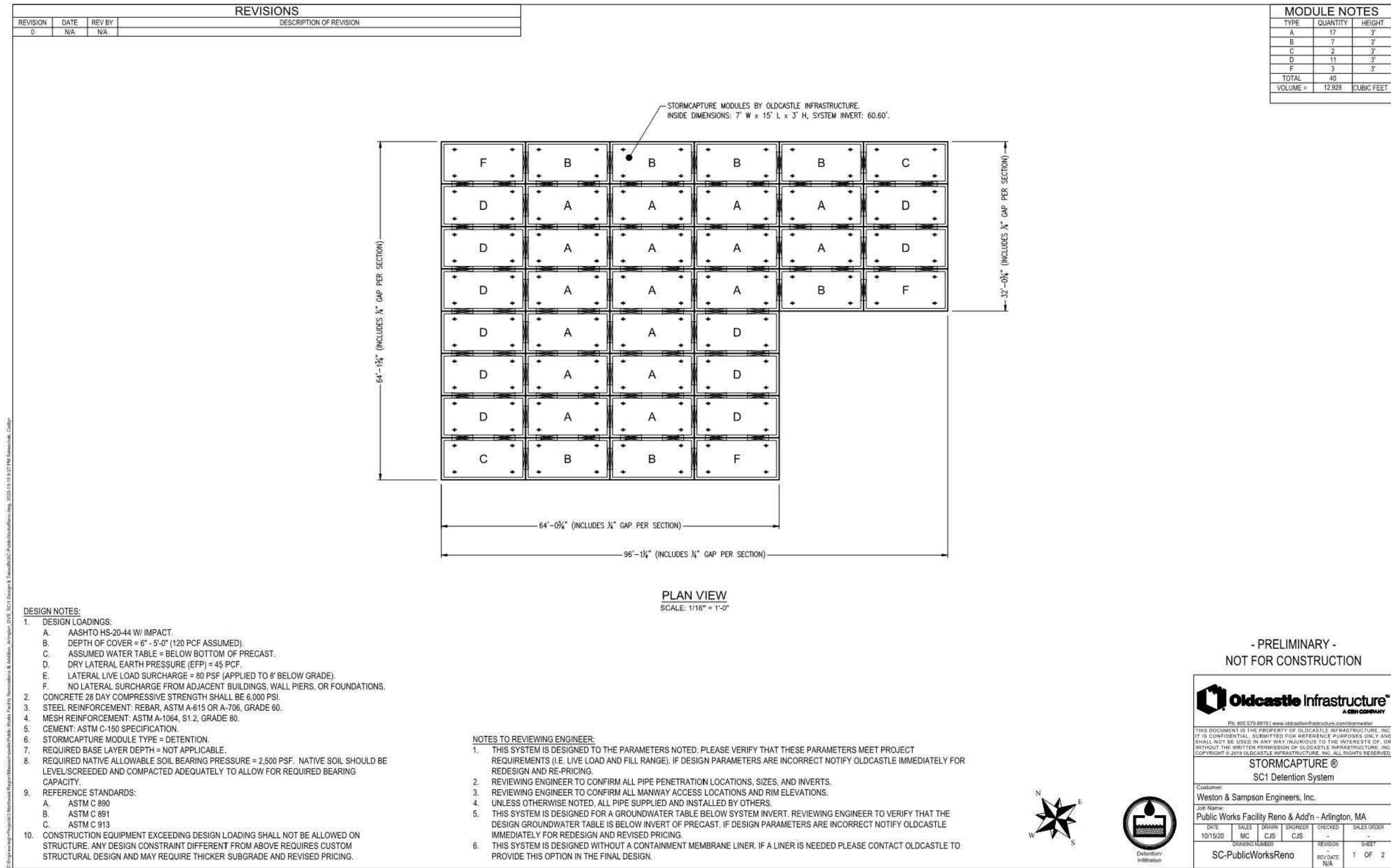
1 OUTLET CONTROL STRUCTURE (OCS)  
SCALE: N.T.S.



2 BIOFILTRATION LANDSCAPE AREA DETAIL  
SCALE: N.T.S.



3 FOCAL POINT BIOFILTRATION SYSTEM  
SCALE: N.T.S.



4 UNDERGROUND DETENTION SYSTEM  
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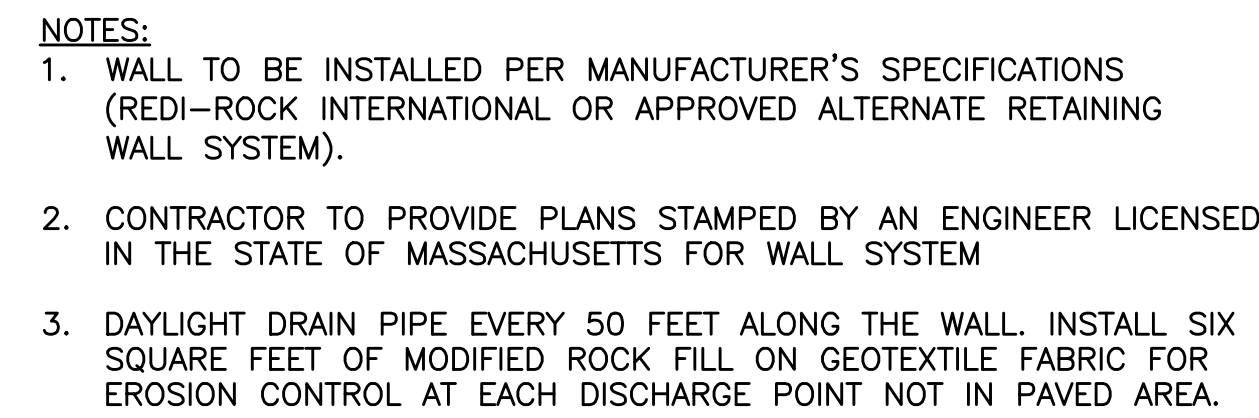
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C806





GUARDRAIL INSTALLATION ON RETAINING WALL  
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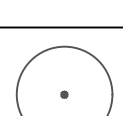
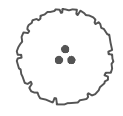
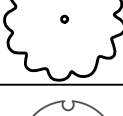
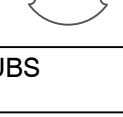
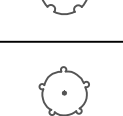
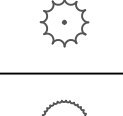
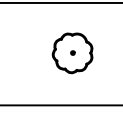

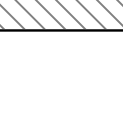


HMA PAVEMENT

CONCRETE

CRUSHED STONE

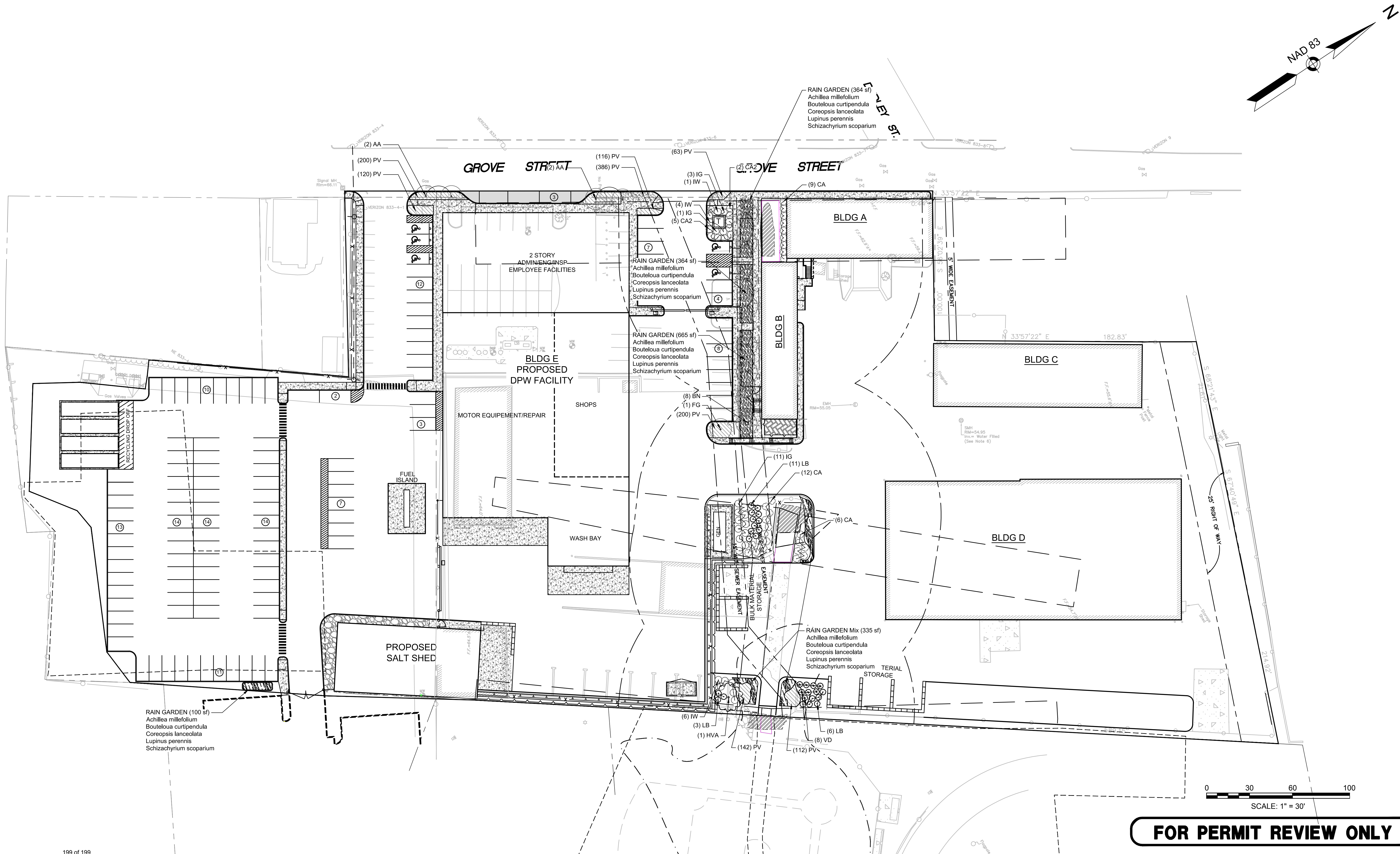
100 YEAR FLOOD LINE PER FEMA

REGULATORY FLOODWAY PER FEMA

PLANT_SCHEDULE								
TREES	CODE	BOTANICAL NAME	COMMON NAME	SIZE		QTY	DETAIL	REMARKS
	AA	Acer rubrum 'Armstrong'	Armstrong Red Maple	---		4		
	BN	Betula nigra	River Birch Multi-Trunk	---		8		
	HVA	Hammamelis virginiana	Vernal Witch hazel			1		
	FG	Fraxinus pennsylvanica	Green Ash	---		1		
SHRUBS	CODE	BOTANICAL NAME	COMMON NAME	SIZE		QTY	DETAIL	REMARKS
	CA	Ceanothus americanus	New Jersey Tea	---		27		
	CA2	Clethra alnifolia	Summersweet Clethra	---		7		
	IG	Ilex glabra	Inkberry Holly	---		15		
	IW	Ilex verticillata	Winterberry	---		11		
	LB	Lindera benzoin	Spicebush			20		
	VD	Viburnum dentatum	Arrow-wood Viburnum			8		
GROUND COVERS	CODE	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY	DETAIL	REMARKS
	PV	Panicum virgatum	Switch Grass	---	12" o.c.	1,439		

CONCEPT\_PLANT\_SCHEDULE

RAIN GARDEN  
Achillea millefolium / Common Yarrow  
Bouteloua curtipendula / Side Oats Grama  
Coreopsis lanceolata / Lanceleaf Tickseed  
Lupinus perennis / Wild Lupine  
Schizachyrium scoparium / Little Bluestem Grass



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LANDSCAPE  
PLANTING PLAN

Sheet Number:

L100